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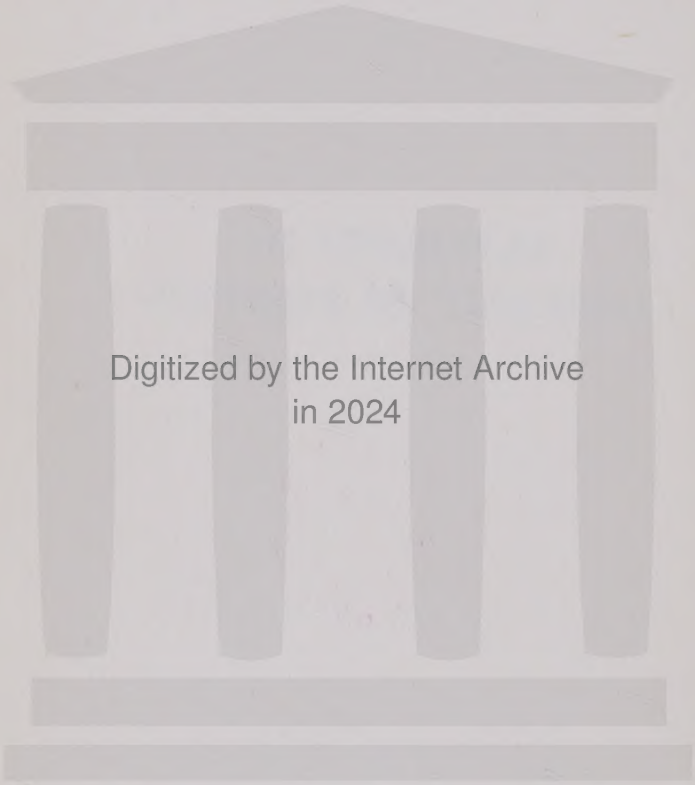

ELEMENTS IN THOUGHT & EMOTION

AN ESSAY ON

EDUCATION, EPISTEMOLOGY, & THE PSYCHO-NEURAL PROBLEM

BY

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TO

ALL TEACHERS

PHYSICAL

MENTAL

SPIRITUAL

PREFACE

This book began its life and growth about thirty years ago with the question "What is Education?" Any complete answer to this question would seem to involve a coherent theory of epistemology, and any working theory of epistemology leads straight to the psycho-neural problem. The voyage of exploration thus begun has proved a fascinating one and seems also to have been intrinsically worth while. It issued at first after many years in a definition of education which seemed on its completion to have assumed something at any rate of the character of which the writer had been in search, and which included a theory of epistemology. This led on to a study of the affective or emotional aspect of the human mind, the result of which is given in the chapter on the Conceptual and Emotional Complexes, and lastly to the sketch of that part of the psycho-neural problem which is considered under the term Neuronism.

Incidentally the work has involved an attempt to peep partly behind the veil of the traditional paraphernalia of philosophy, and has resulted in a new setting of the Conceptual Theory of Thought, and in what at the moment seems to the writer a more or less coherent view of the way in which the conceptual and emotional complexes, which

form the dispositions of the mind, become gradually organised as the result of the experience which is acquired through the different kinds of perception. Opinions as to the validity of the argument throughout will perhaps hinge largely on the connotations attaching to the word "concept." This term, as elsewhere explained, is used to denote something other than the Platonic concept. The Platonic doctrine of the concept affords no assistance to the neurologist of to-day in his search for a synthesis of the psychical and neural elements in thought, and a doctrine of the concept which has spent twenty-two centuries in failing to contribute to the solution of this problem would seem to have just as deservedly earned its discharge as an employee who persistently leaves his job to be done by somebody else.

Philosophy is approaching a synthesis of the psychical and neural aspects of the psycho-neural processes of the individual mind, but it would seem that it is only through a theory of the nature of thought which shall be congruous with what we know of the several and collective functionings of the various parts of the nervous system that such a synthesis can be reached. Any theory of the nature of thought is obviously an affair of metaphysics, yet to a neurologist every such theory has to submit to a test of its congruity with the anatomical structures and physiological processes of the brain and nervous system. In the words of a great English neurologist, Hughlings Jackson, "We have as anatomists and physiologists to study, not ideas but the material substrata of

ideas (anatomy), and the modes and conditions of energising these substrata."[1] Any theory of the nature of thought has to survive, or succumb to, a cross fire from metaphysicians on the one hand and neurologists on the other. Such a theory is here presented for this test.

There has been much recent work and speculation on the wide range of subject-matter which centres round the ill-defined terms "Instinct" and "Intelligence," and the way to a more agreed understanding as to the appropriate use of these terms seems also to lie through a more coherent view of the nature of the thought processes and their relation to the physical parts of the organism.

No apology is offered for the apparent levity of parts of the argument. When an amateur encroaches on the preserves of professional philosophers he must expect to get laughed at for his pains, and may perhaps be excused if he tries to get in a bit of his own laugh first. Mr Santayana tells us that it is time for philosophy "to become less solemn and more serious."[2] Dr Brandes tells us that in *Hamlet* Shakespeare put the motley coat on his own shoulders, and that "the task was a grateful one, for earnestness cuts deeper the more it sounds like jest or triviality"; and Milton gives us, in his own phrase, a saying of Horace that

> . . . . . Joking decides great things
> Stronger and better oft than earnest can.

The writer believes that paradox and jest with

[1] "Hughlings Jackson," by Henry Head, *Brain*, July 1915, p. 84.
[2] "Philosophical Opinion in America," *Proceedings of British Academy*, vol. viii.

their attendant laughter may be made as potent implements for truth as Falstaff made them for untruth, and that a serious argument for humour in the treatment of philosophy might be based on what a modern writer[1] calls its "delicate percipience of proportion," the proportion necessary for all right judgments: enough here that if it be permissible for a philosopher[2] to import philosophy into his fun, it should also be permissible for an ordinary man to import fun into his philosophy.

In looking through the completed essay the writer feels that he has been engaged in little more than putting together a puzzle of which the different pieces have been provided for him by others, or that he can say quite truly, in the words of Montaigne, "I have gathered a posie of other men's flowers, and nothing but the string that binds them is mine own." To all who have contributed these flowers, whether known and acknowledged or unknown or forgotten and unacknowledged, he tenders his sincerest thanks.

Specific personal acknowledgment and thanks are also due and gratefully made to friends for most valuable encouragement and help in a long task—to Sir Alfred Hopkinson, Mr Robert Bridges, Mr Santayana, Prof. Bompas-Smith, Prof. Elliot-Smith, Prof. Findlay, Sir John MacAlister, Mr L. Matheson, the Rev. Cecil Grant, and the Rev. J. F. Jones. The value of this help has been incalculable and in many cases wholly impossible for the recipient to appraise. In the many dark hours which a study

[1] W. J. Locke in *The Fortunate Youth.*
[2] Principal L. P. Jacks.

of the kind involves such help and encouragement have often furnished clues of direction, the value of which can be known only to the writer, and he ventures to hope that the donors will interpret this inadequate acknowledgment in terms of their own generosity.

The writer also acknowledges his indebtedness for permission to reproduce various extracts from books, etc., by way of illustrating many points in the argument. He is conscious that this permission has greatly enriched the volume. To Sir E. Ray Lankester for his paper on *The Increased Size of the Cerebrum in Mammalia*; to Sir Robert Baden-Powell for *Aids to Scouting*; to Mr Homer Lane for *Faults and Misdemeanours of Children*; to the Oxford University Press for *President Wilson's Foreign Policy*; to the Cambridge University Press for Dr Bernard Hart's *Psychology of Insanity*; to the *Manchester Guardian* for "Teaching II.B"; to the *Hibbert Journal* for Mr Bertrand Russell's "Essence of Religion"; to Messrs Macmillan for Huxley's Romanes Lecture on *Evolution and Ethics*; to Messrs Ginn & Co. for Long's *School of the Woods*; and to *Child Study* for Mr J. J. Webber's "Two Hours' Play of a Four-Years-Old Boy." He also expresses his thanks to Mrs Day for long-continued work in transcribing his MS., and for help in the correction of proofs.

G. G. C.

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INTRODUCTION

It is on record that the composition of the "Elegy" occupied the poet Gray over a period of sixteen years, and the present writer finds no difficulty in the confession that the formulation of the definition of Education, which appears at the head of the following page, occupied him over a period of ten or twelve. At a time when the issue of printed matter is so great and when some authors are in the habit of putting two or three volumes into circulation in a year, it may perhaps be considered something of a virtue to have put ten or twelve years into a sentence. An explanation of what this sentence means to the writer may be found in the pages which follow. Whether these pages afford any contribution towards a solution of any of the outstanding problems of human personality others must judge; but it may well be said that any outlined treatment of a subject of such complexity can only be made clear by making it also at the same time in some ways false. On the other hand, there are times when an outline sketch is useful and when crudity may be less fatal than refinement. Such an outline sketch has been attempted in this volume.

EDUCATION is

the DEVELOPMENT and DISCIPLINE of

1. the Body { a. towards health :
   b. towards habits (subconscious activities) :

2. the Mind[a] with its faculties of { acquiring, differentiating, correlating, and integrating } percepts and concepts :

3. the Spirit with its { desire and power } to use these faculties { efficiently and rightly,[b] }

and apply them in { controlling and directing } the { impulses and actions.[c] }

(a) MIND—Conscious, subconscious and unconscious.

"The individual mind may mean either

"i. the series of feelings or 'Mental phenomena' . . . . or

"ii. the subject of these feelings for whom they are phenomena ; or

"iii. the subject of these feelings or phenomena *plus* the series of feelings or phenomena themselves, the two being in that relation to each other in which alone the one is subject and the other a series of feelings, phenomena or objects. It is in the last sense that Mind is used in empirical psychology."—*Art.* "*Psychology*" : *Encyclo. Britann.*, by Prof. James Ward.

It is in the first of these three senses that Mind is used in the above.

(b) The moral sphere, embracing all systems of Morals and Ethics, and the sanctions of all religions from Totemism to Christianity.

(c) Including speech, which is, or should be, voluntary action.

Parts of the above indicate the range, *within their own limited planes*, of Froebel's, Montessori's, Egeria's games and occupations, manual training, organised school games and sports, etc.

The whole or parts of the above combination to the power of G. = Genius.

The whole or parts of the above combination to the power of O. M. W. = Ordinary Man or Woman.

CHAPTER I

THE CONCEPT

Mr Bertrand Russell tells us that a "book should have either intelligibility or correctness: to combine the two is impossible."[1] Whether this book has intelligibility readers must decide for themselves, but let no one suspect it of correctness, for it is based almost wholly on an incorrect use of the word "Concept." This word in philosophical terminology always denotes a "Universal": here it is used to denote either a "Universal" or a "Particular": thus the writer would use the phrase "Universal Concepts" to denote "Universals" and the phrase "Particular Concepts" to denote "Particulars,"[2] yet in any particular case the term concept as here used may, like the Platonic concept, embrace both the universal and the particular. Some such use of the term is doubtless common enough in colloquial terminology, in the terminology of the man in the street; but to remark to a philosopher that "a particular" is "a concept" would be to give expression in a single breath to a whole volume of nescience, because by so doing one would be

[1] *Mysticism and Logic*, p. 95.

[2] Mr Russell is more circumspect: he calls them merely "particulars," leaving the rest to the imagination.

ignoring or belying a large body of philosophic tradition which has come down from or grown up since Plato. In the arrangement of terms usual in this tradition, conception consists in thinking of the Universal in distinction from the Particular, and the results of this process, or "Concepts," have usually been regarded as static rigid entities. "A concept never varies," says James in *Some Problems of Philosophy* (p. 53), yet James in the chapters of this book on "Percept and Concept" seems to be feeling his way to more immediate data of experience than were provided by the "states of consciousness" which had previously been considered the subject matter of psychology. He seems to be trying to find these more immediate data of experience in the reciprocal interaction of percepts and concepts. It would seem, however, that it is only if we be permitted to assume that concepts are in the perpetual state of being refashioned and fitted together in the way described in the following pages that we can find in them and their interactions with percepts the elements from which that part of the human mind which we call its cognitive side becomes gradually organised.

Bergson in his *Introduction to Metaphysics* expresses the opinion that "Metaphysics is only true to itself when it goes beyond the concept or at least when it frees itself from rigid and ready-made concepts in order to create a kind very different from those which we habitually use; I mean supple, mobile, and almost fluid representations, always ready to mould themselves

on the fleeting forms of intuition." Bergson's whole essay is, in fact, an argument against the view to which James alludes—the view that concepts are in their very nature fixed and unvarying.

In a part of this book which was printed privately in 1914, I regarded "ideas" as being objective and "concepts" as merely subjective: "Ideas" as "things in themselves," concepts as the individual's conceptions of those things. While I was thus regarding concepts as subjective constructions, Mr Santayana cast one of his fertile seeds into my mind by telling me that the concept, besides being subjective, has also "an ideal nature, or pattern." I accordingly came to regard it as having two natures—one subjective, the other ideal. If we also accept Mr Santayana's statement that "evolution has re-introduced flux into the conception of existence,"[1] if we regard this flux as being of the genetic quality which James taught us to expect and look for in psychology, we find ourselves in possession of a doctrine of the concept which differs widely from the Platonic doctrine; which presents the variable and varying quality which Bergson desiderates; which brings us within reach of a solution of the problem of the nature of intelligence; which renders possible a hypothetical synthesis of the psychical and neural elements in thought; and which possesses also the advantage of making quite spacious provision in the microcosm for a study of the phenomenology of that human error which is so easily observable in the macrocosm.

[1] *The Life of Reason*, by G. Santayana, vol. i. p. 268.

"Everything which is brought within the range of human knowledge is brought also within the much wider range of human error." In the subjective nature of the concept may be considered to lie those misconceptions, distortions, and illusions which form part of human error, and in its ideal nature may be considered to lie the germ of what we call human truth. In a man's brief span from infancy to age the ideal nature of his concept of Truth may grow and slowly disentangle itself from the subjective nature until it becomes identified with the highest ideal of Truth which has come down to us through the ages, and yet even at its best it will reach no adequate philosophic answer to Pilate's question. During this process of growth it is often fertilised by the dead and fallen leaves of its own withered illusions, and passes through observable and perhaps well-known stages on its way to maturity.[1] These stages in some ways resemble those which have been successively traversed by the collective mind of the race. The biologists' Recapitulation Theory may be seen duplicating itself in the mental life. The ontogenetic process is recapitulating the phylogenetic history.

On the other hand, the ideal nature of a concept may remain completely entangled with the sub-

[1] "A little critical reflection should convince us that we were not originally possessed of the reals we now recognise; they are the outcome of the whole cognitive endeavour of mankind up to date. They have come within our ken by the continual correction of errors, the discarding of unrealities, the sacrifice of illusions. Thus our actual reals are the products of a long sifting, the victors in a prolonged struggle for existence." "The Letters of Wm. James," by F. C. S. Schiller, *Quarterly Review*, July 1921, p. 34.

jective nature which alloys and adulterates it and which produces the various misconceptions and illusions of error. Such misconceptions may extend through a whole conceptual series and gradually become rationalised into obsessions; these may pass from the individual to permeate and become established in massed sections of the community; they may seem, indeed, to their subjects the last word of eternal truths, and yet they are the bases of all fanaticisms and have often shown themselves anarchic in their tendencies.[1] Recent work in psycho-neurology has thrown much light on the importance of the processes of "repression" and "dissociation" by which in part there arise the manifold self-deceptions of mankind, and it will be only, perhaps, when it shall have become the achievement of applied educational science to have infused into the mass consciousness of the community a full realisation of the pervasiveness of human error and of its power to pervert and vitiate the conception of human truth that we shall be able confidently to look forward to the time when politics may begin to be a science.

In the view here presented of the concept as an entity embracing two natures, one ideal and the other subjective, imagination may enable us to see exemplified Hegel's principle of polarity, his doctrine of the Synthesis of Opposites. Each concept is in this view a mediation in ever varying degree between its ideal and its subjective natures, between what we call human truth and what we call human error. Each concept in an individual

[1] *E.g.* Karl Marx's *Capitalism.*

mind is also, in the terms of Hegel's doctrine, in continual *process of becoming*[1] either more ideal or more stereotyped in its own subjectivity. Herein, perhaps, we may find a partial clue to much that is enigmatic in the working of the half intelligent automatisms in man, to his greatness and littleness, to the nobility and the corruptions of life, to the seeming defeat of good and success of evil, to what often proves to be the futility or fatuity of man's far-reaching aims, and to the impotence of his collective strivings towards the attainment of high ideals. Just as the cellular theory of Schleiden and Schwann by taking up into itself the formulated discoveries of more recent workers has during the past century flooded with light the whole realm of biology, so the term "concept," by being permitted to embrace in its connotations the conclusions of recent philosophers, may also be expected to throw light on some of the more obscure passages in the volume of mental science. In the view here presented, this term, which has of late become colloquialised, and which in the process of becoming colloquialised has loosened itself in some measure from the tenure of the Platonic tradition, may be held to have assimilated and to be giving implicit expression to the newer doctrine which has come to us through Hegel, through James, and through Bergson. It is in the sense and with the connotations here indicated that the term concept is used throughout this book.

[1] "'To be or not to be—that is the *question*,' said Hamlet:
'To be is not to be—that is the *answer*,' said Hegel."
All Men are Ghosts, by L. P. Jacks, p. 102.

CHAPTER II

PERCEPT AND CONCEPT

PSYCHOLOGY talks to us about "presentations"[1] and "re-presentations," but it is the business or part of the business of education to prevent the "re-presentations" from becoming "mis-re-presentations."

If we enter a room and see a violin on the table we may take it up and, if we are able, play it. We then have three series of "presentations" of the violin, acquired respectively from the senses of sight, touch and hearing. If we stop playing, replace the instrument on the table and shut our eyes, the "presentations" at once cease, but we can still retain in our minds a notion of the violin with the characteristics with which our three senses have endowed it. This notion of the violin which remains after the sensations which caused it have disappeared, is the "re-presentation" of the violin; or, if we adopt an alternative phraseology, the "presentations" may be called "perceptions" or "percepts," and the "re-presentations" may be

[1] The writer here follows Wm. James in terminology. Prof. Ward uses the same word "presentation" to denote "all the various mental facts spoken of as sensations, movements, percepts, images, intuitions, concepts, notions" (*Psychological Principles*, p. 46). The lack of definiteness which would seem necessarily to result from giving such a wide signification to the term seems to the writer to be inconvenient.

called "conceptions" or "concepts." The mind first "perceives" the sensations as they pass in by the senses, and afterwards "conceives" the notion of the violin with its characteristic appearance, touch and sound. The process of "perceiving" gives us "percepts," the process of "conceiving" gives us "concepts." In this procedure the mind has first "acquired" percepts of the violin from the three senses and has correlated these three streams of percepts and combined them into a single concept, and this concept which remains in the mind with the label "Violin" attached to it can be held in the consciousness for an indefinite time, or it can be immediately replaced by another concept or series of concepts, in which case it passes into the subconscious mind and is "forgotten" but can afterwards be "recalled" or remembered again as often as we wish.

If we put a child through the above experience and a little time afterwards ask him—What is a violin? we may get some such answer as the following: "A musical instrument something like a small 'cello, with a thing like a handle about ten inches long at one end, and four or five strings which you play on with a bow!"[1] It is evident here at once that in this case the "re-presentation" is also a *mis*-representation; that the "concept" is an example of *mis*-conception. It is clear that the violin concept which the child's mind has formed or acquired is in some ways erroneous and distinctly lacking in precision. It requires to be made more defined, more accurate, and to

[1] An actual reply to the above question.

be further "differentiated." Send the child to look at the instrument again, and as the result of a fresh stream of percepts acquired from the eye, the "four or five" strings become definitely "four." Under the tuition of the master and new percepts acquired from the eye and the ear, the "thing like a handle" becomes a neck. Under further tuition from the master which reaches the mind by percepts acquired from the ear, the eyes and the touch, the sound of the instrument is discovered to be due to the movement or vibration of the strings. If the child is learning to play the instrument he gradually learns to differentiate between its various parts. He learns to know by their several names :

The *Head* with its scroll and pegs :
The *Neck* with its nut and finger-board :
The *Body* with its back, its belly, its ribs, its sound holes, its sound post, its bass bar, its tail pin, its purfling :
The *Strings* stretching from the pegs to the tail-piece over the bridge, and differentiated from one another by their make, their size and their tension.

A further acquaintance with the instrument will bring a recognition of the different kinds of wood of which it is made, and of the functions of all the various parts in the production of the music when it is played.

In this illustration we have an example of a concept which has been "differentiated" by "correlating" with it numberless new percepts. It would

be a mistake to regard this process of differentiation which has been going on as a mere splitting of the original concept into many new concepts. The violin concept remains but it has undergone profound changes. It has become more accurate and more differentiated ; but this differentiation has taken place not at the expense of unity but by the creation of a more complete and perfect unity—a unity enriched with new features, as a precious stone is enriched by the cutting which changes it from its rough natural form to the many-faceted brilliant, which transmits light and reflects and disperses it from its many faces to disclose its new lustre and beauty.

We have here an illustration of the formation of a concept in the mind ; of the gradual shaping of that concept under the influence of countless new streams of percepts ; of its ultimate differentiation till it stands clear with all its various component parts defined with precision and many of them named. And the concept thus formed is a mental symbol[1] of the material violin, which consists of wood and glue and varnish and gut and wire.

But this process of differentiating the concept may be carried to an infinitely further degree of minuteness. If we listen to two violinists discussing some of the minutiæ of their technique we may learn much about the difference in tone of such instruments according to the positions occupied

[1] "Concepts are therefore not images, but symbols. Our logic is the complete set of rules that must be followed in using symbols." Bergson's *Creative Evolution*, p. 169.

by the sound post, the sound holes and the bridge, the nature of the varnish, the size and quality of the strings. They will work for hours, changing the positions of the bridge and sound post, and trying the effect on the tone ; changing the strings and pitting their two instruments one against the other, and after prolonged trial will perhaps agree that instrument A gives its best tone with strings ranging from ·026 in. thick (E) to ·046 in. thick (D), and that instrument B gives its best tone with strings somewhat thicker : that when both are working at their best the purest tone on the E string is found in instrument A, and the purest tone on the D string in instrument B : that in instrument A the G string is "woolley," and in instrument B the A string is "harsh" : that in volume of sound B is incomparably better than A and therefore in this respect better fitted for use in a concert hall, while A is admirable for chamber music.

But even this is not all ; for when these various adjustments have been decided upon and satisfactorily carried out there remain others perhaps even more important still, namely, the adjustment of the right relation between the tension of the different strings, and this is one which continually needs making from time to time during the progress of a concert, often indeed during the playing of a single piece, and without which no perfect rendering of the music is possible.

And although we saw above that the process of differentiating the violin concept did not rob it of its unity and sever it into new and isolated con-

cepts, but only endowed it with a more complete and perfect unity, yet it is equally true that just as the material violin can be taken to pieces and resolved into its component parts of neck, and body, and strings, etc., etc., so all the differentiæ of the mental symbol *have* been separated in the mind into independent concepts and can be so regarded if we please. We can still regard them, with the name-labels which we have attached to them, either as integral portions of the completely differentiated violin concept, or we can regard them as separate concepts, in which form they can, with the same labels attached, enter into the composition of other concepts, just as the material bridge or material strings of instrument A can be transferred to and made part of instrument B. So that the differentiation, for example, of the violin concept carries us a long way towards, and helps us a great deal in the process of differentiating the violoncello concept, owing to the similarity of the instruments.

The process which has been going on in the mind may be likened in some respects to that which is followed in the making of a material jig-saw puzzle. A picture is pasted on a thin piece of wood, and picture and wood divided by a fret-saw into pieces corresponding somewhat in number to the size of the picture employed ; and after the division each part can be isolated and regarded as a separate piece of wood and picture, which can be carried away and even lost (as a portion of the violin concept can be lost by the conscious mind or forgotten), yet none the less the lost piece

remains an integral part of the original picture puzzle which must remain incomplete until it is found and fitted into its exact position in relation to the other pieces.

When we first begin putting together such a puzzle, we choose a piece with some prominent feature on it, and look out for a piece of the same colour, and after finding one we see whether it forms part of the design on the first piece, and if so whether some portion of its margin fits perfectly against some portion of the first piece: if not we reject it and try another. When we find a piece which does fit exactly against the first we see that the two are related together or co-related in colour, in design and by the curvature of some portions of their margins. Each piece of the puzzle we know to be similarly co-related with other pieces, and when we have found out the several relations of all the pieces and placed them all in those relations, we have made the picture complete: we have formed one complete whole out of the various pieces, or, to express it in a word, we have *integrated* the pieces.

As it is the part of anyone who sets about doing the puzzle to find out the exact relationships between the pieces and place them in position in these exact relations: as it is the part of the violin player to see that the various parts of his instrument are in right relationship to one another, and to be ready to readjust this relationship if needed (as by tuning): so too it is the part of the educator not merely to aid his pupil to form new concepts, and to differentiate those concepts, but also to

relate these all together, to co-relate[1] them or to correlate them, and

> "so subtile is the discernment of man, and so great the power of some men to single out the most fugitive elements of what passes before them, that these new formations have no limit. Aspect within aspect, quality after quality, relation upon relation, absences and negations as well as present features, end by being noted and in their turn their names added to the store of nouns, verbs, adjectives, conjunctions, and prepositions by which the human mind interprets life. Every new book verbalises some new concept, which becomes important in proportion to the use that can be made of it. Different universes of thought thus arise, with specific sorts of relation among their ingredients. The world of common-sense "things"; the world of material tasks to be done; the mathematical world of pure forms; the world of logic, of music, etc."[2]

It is then part of the business of education not merely to add new concepts to the mind but also to help the mind, on the one hand to differentiate those concepts into their elements, and on the other hand to co-relate or correlate them with all the other concepts which that mind contains.[3] And it is by the acquiring of concepts and by the differentiating and correlating of all the concepts which the mind contains that its cognitive dis-

[1] "It was the study of the Greek to see all things in their relation to other things, and in their relation to life; and to do this, that even and complete development of all his faculties was necessary, which was the aim of his whole training and education." *The Works of Man*, by L. March Phillipps, p. 215.

[2] *Some Problems of Philosophy*, Wm. James, p. 51.

[3] "More precisely, intelligence is, before anything else, the faculty of relating one point of space to another, one material object to another, it applies to all things, but remains outside; and of a deep cause it perceives only the effects spread out side by side." Bergson, *Creative Evolution*, p. 185.

positions[1] and cognitive equipment are very largely formed.

In a previous page we likened the fully differentiated concept, or mental symbol, of the violin to a precious stone cut into many facets which enriched its value and beauty. Let us now suppose that our minds contain large numbers of such myriad-sided symbols grouped together in various ways and forms ; and then that something flashes through this grouped mass darting into and through and between the symbols of which it is made up, like light flashes into and through and between the precious stones of which a jewelled ornament is composed. And further let us imagine that simultaneously with this movement of something through and between these myriad-sided symbols there is also a movement of the symbols themselves : a movement which brings them ever into new relations with one another but again fitting closely together, joining themselves into new combinations, linking themselves into new and ever changing clusters. The apparently impossible combination of these three kinds of movement—the movement of something into and through and between the symbols and the simultaneous splitting, or moulding, and the re-grouping of the symbols themselves, the two latter movements often caused

[1] "Dispositions are the abiding after-effects left behind by prior experiences. They are inherited and acquired." Stout's *Groundwork of Psychology*, p. 7.

"We have to conceive the cognitive dispositions as linked together in minor systems, and these minor systems as linked in larger mental systems, and these again in larger systems ; and so on, by many steps of super-ordination, until the whole multitude are linked in the one vast system." *Psychology*, by Wm. McDougall, p. 84.

by the former, may serve us for an image of what we call thought :—the miracle or the alchemy of thought. And the symbols which tumble apart and re-form themselves into new and ever-changing combinations and clusters are concepts, and the something which flashes through and between them and is often the cause of their movement and change of grouping is the stream of new percepts which the mind is unceasingly acquiring from the sense-data[1] furnished by the nerves and sense organs.

As you have been reading these pages the sense-data furnished by your eyes have been perceived by your mind, and the continuous stream of new percepts thus acquired as your eyes have glanced along the print have been recalling to your consciousness concepts formed long ago and stored up or built into the cognitive dispositions of your mind. These concepts and many of their relationships have been thus recalled by the string of name-labels which represent them in the print. The concepts which your mind has by its previous experience learned to attach to some of these labels may differ from those which the writer has learned to attach to them, just as the child's concept of the violin differed from that of the violinist. But the labels will be all familiar though the particular grouping of them will be in some ways new, and thus new groupings and new combinations of the concepts stored in your mind will have been effected by the stream of new percepts acquired as your eyes glance along the page. And

[1] For a statement of the sense in which the term "sense-data" is used, *v.* p. 125.

this, it will be at once seen, is typical of much of our daily experience : in reading books, in reading the daily paper, in talks with friends, during which the dynamic stream of percepts is acquired from the ear as well as from the eye. Ever thus in our daily life these streams are at work enabling us to form new concepts, to perceive new relations between old ones, enriching and re-valuing them as happened to the child over the violin, and assigning to each as life goes on a more important or less important position in our entire intellectual equipment than it originally occupied.

In a previous page in considering the differentiation of a concept we used as an example the concept of a material object—the violin. Let us now take a concept of another kind, of something immaterial, but quite as familiar and one which we are all of us using every day. Let us vary slightly a question which we are frequently asking one another and instead of asking "What is the Time?" let us omit the article and ask ourselves "What is Time?"

We find if we travel across to Ireland that according to our watch we arrive about half an hour late, and that if we go to Switzerland we arrive an hour too early ; and we learn that these are variations of what is called Local Time. If we travel abroad by ship we find that the ship's time annoys us by varying daily, and it hardly compensates us to discover that when we are travelling East, and each day is shorter than 24 hours, the ship's clocks are put forward in the day time so as to shorten the working hours, but that when travelling West, and each day is longer

than 24 hours, the clocks are altered in the night time so as to lengthen the sleeping hours.[1] We are all of us aware that the civil day begins in the middle of the night, 12 o'clock midnight, but we may not all know that the astronomical day begins in the middle of the day, 12 o'clock noon. We all of us know Day-time and Night-time, Dinner-time and Bed-time, some of us too are acquainted with "Half-time." We talk of marking Time, of keeping Time and of beating Time, but what *is* Time that we should use it for such different purposes, and treat it in such different ways? If in our embarrassment we inquire of the officials at Greenwich they may ask us *which kind* of Time we want to know about. Do we want Greenwich Mean Time or Greenwich Local Time, or would we prefer Solar Time or Sidereal Time or Standard Time? All of these we shall learn are different, and though we may be merely in search of the *proper* and *real* Time we may be puzzled to know which of these *is* the proper and real one. We shall learn also that although the sun has a good deal to say in the arrangements of Solar Time, yet even he is not impeccable, and that the astronomers have to make allowances for him on those days on which he gets up early or late. We shall find too that some of these varieties of Time are settled by gentlemen who call themselves "directors of astronomical ephemerides," and after all these unexpected difficulties and disillusionments in our search for Time—after all these various confoundings of sober chronology—it may come to us

[1] This was told to the writer by the captain of a liner, but was probably only a *jeu d'esprit*.

as something of a relief to learn from M. Bergson that Time himself is mostly an illusion, and that what we persistently mistake for him is in reality only "Duration."[1]

Or take yet another concept just as familiar to us all; one which involves the question of ethical "values." Take the concept of that joyous state of feeling to which we attach the label "happiness."

> "What is happiness? It is an infinite thing, so infinite that no man can tell its forms, enumerate or measure its varieties. There is happiness which is mere sensual indulgence, and happiness which is intellectual enjoyment. There is the happiness of the savage, who lies and suns himself, gorged, on the bank; of the serious student, who lives in the study and among his books; of the speculator, who gambles in stocks and shares; of the strenuous athlete, who feels as if his soul were in his muscles or his limbs; of the *nouveau riche*, who feels as if recognition by Society were admission into heaven. Unless we define happiness, how can we speak of it? . . . Is it sensuous? Is it intellectual? Is it ethical or social? Is it 'Comfort,' which seems to so many Englishmen the only real paradise? As we have seen that quality is a needful element in the definition of Happiness, we find it to be also needful in the differentiation and appraisement of its kinds . . . Is the greatest quantity of a lower quality of happiness to be preferred to a smaller quantity of a higher quality? Then what or who is to determine the sort of happiness to which

[1] "There are indeed, as we shall show a little later, two possible conceptions of time, the one free from all alloy, the other surreptitiously bringing in the idea of space. Pure duration is the form which the succession of our conscious states assumes when our ego lets itself *live*, when it refrains from separating its present state from its former states. For this purpose it need not be entirely absorbed in the passing sensation or idea: for then, on the contrary, it would not *endure*." *Time and Free Will*, by H. Bergson, p. 100.

superior and determinative excellence belongs? Is it the man? Is it the fashion of the passing society? Or is it some standard apart from both, and more permanent and universal than either?" [1]

Let us take some further examples.

"The jackdaw sat in the Cardinal's chair." It was at Rheims—but we all know the story—the story of a bird's instinct. A boy of four runs into a strange room, sees something bright on a table, is attracted by the glitter, seizes the bright object and presently puts it into his pocket to play with another time. It is a similar instinct to that in the bird. The boy lives to be an old man, the instinct has grown with his growth and strengthened with his strength, till it has come to dominate his whole life which he has mostly spent in gathering as much as possible of one form of what glitters, and we call him a miser.

> "There is one fable that touches very near the quick of life,—the fable of the monk who passed into the woods, heard a bird break into song, hearkened for a trill or two, and found himself at his return a stranger at his convent gates; for he had been absent fifty years, and of all his comrades there survived but one to recognise him. It is not only in the woods that this enchanter carols, though perhaps he is native there. He sings in the most doleful places. *The miser hears him and chuckles, and his days are moments.*" [2]

But his happiness is the happiness of mere instinct which has mastered the whole man instead of being mastered by him.

[1] *The Philosophy of the Christian Religion*, A. M. Fairbairn, p. 79.
[2] R. L. Stevenson, "The Lantern Bearers," from *Across the Plains*.

Or take the following :—

"In the Neolithic Age savage warfare did I wage
For food and fame and two-toed horses' pelt ;
I was singer to my clan in that dim red Dawn of Man,
And I sang of all we fought and feared and felt.

"But a rival of Solutré, told the tribe my style was *outré*—
'Neath a hammer, grooved of dolomite, he fell.
And I left my views on Art, barbed and tanged, below the heart
Of a mammothistic etcher at Grenelle.

"Then I stripped them, scalp from skull, and my hunting dogs fed full,
And their teeth I threaded neatly on a thong ;
And I wiped my mouth and said, 'It is well that they are dead,
For I know my work is right and theirs was wrong.'" [1]

It is again the happiness of a gratified instinct of primitive man.

But when Samuel Johnson said "There is nothing which has yet been contrived by man by which so much happiness is produced as by a good tavern or inn," he was probably thinking less of the food and liquor it supplied than of the mental clash and sparkle of wit that he was accustomed to find there. It was one form of the happiness of intellect. And when Archimedes thought of a manner of computing the proportion of gold in King Hiero's crown by seeing the water flowing over the bathing stool and leaped up as one possessed or inspired crying "I have found it, Eureka!" [2] he was experiencing another form of the happiness of intellect.

[1] *The Seven Seas*, R. Kipling, p. 124. [2] Plutarch.

These may be considered examples of the positive form of the happiness of intellect. But there is also what may perhaps be considered a negative form of the happiness of intellect—"where *ignorance* is bliss"—and which is charmingly illustrated by one of R. L. Stevenson's anecdotes of his own boyhood.

> "Although I was never done drawing and painting, and even kept on doing so until I was seventeen or eighteen, I never had any real pictorial vision, and instead of trying to represent what I saw, was merely imitating the general appearance of other people's representations. I never drew a picture of anything that was before me, but always from fancy, a sure sign of the absence of artistic eyesight; and I beautifully illustrated my lack of real feeling for art, by a very early speech, which I have had repeated to me by my mother: 'Mama,' said I, 'I have drawed a man. Shall I draw his soul now?'"[1]

In thus distinguishing between the happiness of gratified instinct and the happiness of intellect we find ourselves somewhere in the region of the old Greek distinction between ἡδόνη and εὐδαιμονία, but in poetry and religion we often touch a much higher note.

SUNRISE

> Sound needed none,
> Nor any voice of joy; his spirit drank
> The spectacle: sensation, soul and form,
> All melted into him; they swallowed up
> His animal being; in them did he live,
> And by them did he live; they were his life.
> In such access of mind, in such high hour
> Of visitation from the living God,
> Thought was not; in enjoyment it expired.

[1] *Life of R. L. Stevenson*, by Graham Balfour.

No thanks he breathed, he proffered no request ;
Rapt into still communion that transcends
The imperfect offices of prayer and praise,
His mind was a thanksgiving to the power
That made him ; it was blessedness and love ![1]

Here we have an example of the happiness, not of instinct, not of intellect, but of spirit.

And here in as many lines may perhaps be discerned all three :

"One goal attained, another half in view,
One riddle solved, another still to guess,
Something subdued, and something to subdue,
Are the conditions of our happiness."[2]

Or take the concept to which we attach the label "Freedom." What is Freedom? If we survey our political, religious or social history we shall find that they show us many varieties of freedom as biology shows us many varieties of a species. There is freedom of thought, freedom of conscience, freedom of public meeting, freedom of speech, freedom of the press : there is also what we may perhaps regard as Tennyson's anticipation of the present political freedom in Russia — "Freedom free to slay herself, and dying while they shout her name." In the individual sphere there is the freedom of liberty and the freedom of licence, freedom to trespass against the laws and get punished for so doing, freedom to form hasty and inadequate opinions on all sorts of subjects, freedom to try and implant them firmly in other

[1] Wordsworth's *Excursion*, Book i.
[2] *The Eloping Angels*, by Wm. Watson.

people; and then there is the concept in its entirety —FREEDOM—often little more than "a word masquerading as an idea,"[1] inchoate and nebulous as the child's concept of the violin, and much in vogue on political platforms as a convenient implement for thumping the democratic tub.[2]

Or take the concept to which we attach the label "common-sense."[3] What is common-sense? An epigram has it that "Sure common-sense is but uncommon sense"; but the writer feels that this is a quite inadequate explanation, and he believes that just as Cavendish in years gone by differentiated our concept of water into the two concepts of hydrogen and oxygen so our concept of "common-sense" will be also by and by differentiated into two quite dissimilar constituents. It is often helpful to explain these abstract intangible qualities by means of some form of physical imagery, and were he obliged to hazard an opinion he would feel inclined to compare common-sense to that gracious and refreshing beverage widely indulged in before the war and known by the name of whiskey and water. Like whiskey and water common-sense is, he thinks, composed of two quite separate and distinct ingredients: as in whiskey and water one of these ingredients is stronger and more medicinal, while the other is weaker and of the nature of a diluent: as in whiskey and water the stronger and more medicinal element is usually smaller in volume,

[1] A delightful phrase by William James of quite frequent applicability.

[2] "When once we have succeeded in catching the multitude by the bait of liberty it follows like a blind man, if only it hears the mere name of it." Bossuet.

[3] Colloquial common-sense, not the *sensus communis* of Aristotle.

but again as in whiskey and water the proportions are blended in accordance with the habits and temperament of the person who uses them. And the name of the more potent and medicinal element is "uncommon sense," and the name of the weaker element is "common non-sense"; but one never can tell in any particular case what are the proportions of these two ingredients in the entire mixture. Some of the wisest of mankind have often rejoiced in the use of both these ingredients unblended. Sydney Smith, for example, "was talking one day with Dr Marcet in a very impressive and serious tone on scientific and other serious subjects, when suddenly starting up he stretched out his arms and said, 'Come now, let us talk a little nonsense.' And then there came such a flow of wit and joke, and anecdote, such a burst of spirits, such a charm of freshness and manner, and such an irresistible laugh, that Solomon himself might have yielded to the infection and cried out 'Nonsense for ever!'"[1]

Students of philosophy may see in the above something of a parallel to Hegel's dialectic of Conscience.

> "Conscience dialectically passes into wickedness. This statement may appear startling at first sight, but there is no real paradox involved in it. It does not mean that everyone who acts conscientiously acts wickedly; nor does it assert that conscience as it appears in the ethical world, where its negative aspect is merely the reflex of its positive and objective comprehensive content, is the principle of moral evil. It means that when due weight is given to the limitations of the conscience which remains wholly with the abstract

[1] *Life of Sydney Smith*, by Lady Holland.

moral sphere and fails to rise to the objective and social standpoint of ethical observance, the principle of moral evil is exposed. Abstract morality which tries to complete itself in isolation from the higher reaches of mind is a negative principle—the principle of evil." [1]

As a possible example let us take the following extract from ex-Kaiser Wilhelm's letter to Marshal von Hindenburg, dated 5th April 1921 and published in the daily press on the 19th December 1921.

"For me, moreover, there can be no question of arraignment before a neutral court in view of the position which I as Kaiser and King, that is as constitutional, unanswerable representative of the German nation, have maintained to the best of my ability and conscience. I do not acknowledge the sentence of any earthly judge, however high he may be placed, since I should thereby surrender the honour and dignity of the German people represented by me."

Opinions will doubtless differ as to whether this working of the ex-Kaiser's conscience was an example of Hegel's negative principle of evil, or of conscience becoming a defiled conscience, and becoming also thereby not merely a negative but a positive principle of evil. Where a conscience of this latter kind is untrammelled by the majesty and dignity of Kingship, it may, as in Falstaff's case, employ humour as one of its instruments for debasing the currency of moral ideas to its own insubordinate level.

We have now taken five concepts of different kinds and shown how in each case the concept

[1] *The Ethical Theory of Hegel*, by Hugh A. Reyburn, p. 177.

originally formed may be subsequently differentiated in the mind, and how this process takes place as the result of the correlation with the original concept of countless new streams of percepts. This process may take place at any time in the mind's life after the original concept has been formed, but whether it take place early or late the result is the same —a gradual alteration of the original concept, an alteration tending to endow it with greater precision, and to clarify or to correct details which at the first conception were nebulous or erroneous. This process of differentiation may be either quantitative or qualitative, and the illustrations we have taken have furnished examples of both kinds—quantitative as we saw in the strings of the violin and as might be seen in their vibrations, and also in the concept of Time, and qualitative[1] as we saw in differentiating the concepts of the feeling which we call happiness, and of the condition which we call freedom, and both qualitative and quantitative in what we call "common-sense." Illustrations such as these might be multiplied endlessly. We might take as a further illustration the concept of a picture of which at the first examination anyone, whether a child or adult, can only form an incomplete visual image, embracing the main features, such as the nature of the subject, something of the composition, something of the colouring; and the correctness and completeness of this mental image will depend on differing aptitudes and differing cognitive equipment in different individuals. But the mental picture after

[1] "The object of metaphysics is to perform *qualitative* differentiations and integrations." *Introduction to Metaphysics*, H. Bergson, p. 62.

being formed must be corrected, amplified and supplemented by re-examination of the objective picture, and this is effected by subsequent and repeated streams of fresh visual percepts.[1] Or we might take a piece of music and show how the same process applies in the auditory sphere of cognition. Or we might take some of the Socratic dialogues which afford excellent illustrations of the process of differentiating concepts.

We have seen that a process of change takes place in a concept after it has been originally formed. We have seen that this process is a change of the genetic kind which James taught us to look for in psychology. It is a change of a somewhat similar kind to that which takes place in the development of the different organs of the body, a growth in bulk or mass accompanied by an increasing differentiation of structure. The significance of the nature of this growth process in the concept will become apparent later in considering the relations between the psychical and neural elements in the process of what we call thought.

[1] "Ruskin kept all his life long the power of looking into things and seeing their smallest details; so that when he says he sees this and that in a picture, which it is impossible to ordinary eyes to detect, we may at least be sure that he had looked longer at what he is describing than we are ever likely to do, and with a patience, as a German critic once wrote, that verges upon frenzy." *Ruskin: A Study*, by A. C. Benson, p. 196.

CHAPTER III

SENSE-PERCEPTION[1]

It is to a large extent upon the seemingly meagre basis of sense-perception that mankind has reared its ample monuments of Art, Science, Literature and also its Religions.

We have traced the process by which a concept may be formed in the mind and how it is afterwards moulded, or shaped, or differentiated by subsequent streams of new percepts which the mind acquires from the sense-data, or sense-continuum furnished through the nerves and sense-organs. It now remains to show how similarly the acquisition and differentiation of percepts, or the differential perception of sense-data or the sense-continuum, is a direct means of the formation of new concepts and an essential part of the complete mental processes. We have spoken of streams of percepts being acquired by the mind from the sense-data and used by the mind for moulding, shaping and differentiating concepts, but it would be quite erroneous to suppose that all the sense-data furnished for example through

[1] Sense-Perception. So designated in order to exclude what has been variously called intuitional perception, or super-sensuous perception, or supra-rational intuition, and to exclude also that kind of perception by means of which we become conscious of instinctive and emotional impulses within us.

the eye or the ear at any given moment are taken up by the perceptual faculty of the mind and so used. It is of the essence of the process that it is selective; that the mind selects[1] some of the sense-data presented to it and rejects or disregards others. If at any time we are intently engaged with pen and paper in working out a problem of any kind that interests us we may become so absorbed in it that many of the sense-data presented by our sense-organs and nerves pass entirely unheeded. The traffic may roar in the street outside but it passes unnoticed, someone may enter the room without our *perceiving* it, for the mind with its perceptual faculty is engrossed with its task and the sense-data which announce the fact are ignored. It is not to be thought that in such cases the functions of the eye and ear are in abeyance, rather it is that the mind has acquired the power so to engage its perceptual powers on the work in hand that extraneous sense-data fail to attract them from their immediate task. And this concentration of the whole powers of the mind—both perceptual and conceptual—upon any necessary problem at any necessary time is a vital necessity in education. An essential for lack of which the mind too frequently lapses from what should be the labour of thought into the mere sport of musing.[2]

[1] "A man is born with certain feelings and likings—and it is in this respect that men most differ—and as they grow up in what is called their environment their bias and special predispositions unconsciously select and organise their experiences to feed and develop their special likings." Address by Robert Bridges, Poet Laureate, to the Swindon Branch of the Workers' Educational Association, October 1916.

[2] "I have seen historical scenes acted with much vigour by some of the children in the first class, and applauded with equal vigour by their classmates, while all the time the children in the second class, who were

The sense-data (or the sense-continuum) have then to be *perceived* by the mind as well as to be transmitted by the sense-organ.

Let us see in the case of some of the senses what this means. Take for example the eye, in which an optical picture of the view in front of it is projected by the lens upon the retina. This picture is not, as a rule, all perceived by the mind at the same time. The perceptual powers are concentrated upon different parts in succession, and the lens is focussed for such parts as may be desired by the ever-changing fancy of the individual.

But this is only a beginning, and the perceptual powers of the mind have to be trained to differentiate various small details which come at any moment within the field and the focus of view. If a townsman goes for a country walk with one who has lived long in the country, and is well versed in the lore of animal life, his steps may, as they are walking along, be arrested by the remark, "Ah! there is a hare!" "Where?" says the townsman, anxious to catch a sight of the animal. "There! crouching by that withered bracken. Don't you see it?" "No," says the townsman. "Now look," replies the countryman. "It raises its head. Now it moves to the left." But still the townsman is unable to see it, and it is not until the hare bounds away that he is able to catch sight of it. In this case it is not the optical properties of the townsman's eye which are at

drawing flowers in the same room, never lifted their eyes from their desks." *What Is and What Might Be*, by Edmond Holmes, p. 158.

fault. It is that his perceptual powers are not able to differentiate exactly this unwonted sense-continuum, and are unable to perceive minutiæ which are pictured accurately enough on the retina. But it only needs training on objects of this kind to endow him with similar powers of sight.

> "A man who has not trained himself at looking at distant objects is very apt to mistake objects for what they are not. I have known cattle reported as horses, walls as troops, cavalry as a hedge, carts as artillery, cavalry as infantry, and so on. Troops of brood mares running loose ; and, in the mirage, buck, oxen, or even ostriches, were frequently reported as Boers in the South African campaign." [1]

These mistakes also were not primarily due to defective sight but to a want of training of the perceptual power to differentiate accurately between the minutiæ of the sense-continuum, and may be obviated by persistent training.

> "I find it useful to get on to some good look-out place with a pair of glasses, or a telescope, and to look at very distant objects, people, or animals, and see what I can make of them, and then correct myself by studying them through the glass. Also it is a most useful practice to find with the glass some such objects in the far distance, and then to gaze at it until you can see it with the naked eye. Afterwards, try and find objects at a similar distance, without the aid of glasses. In this way you will find that you gradually become able to see men and animals at an extreme distance, where they are scarcely visible to untrained eyes." [2]

If in this course of training advocated by Sir Robert Baden-Powell something be allowed for

[1] *Aids to Scouting*, p. 28, by Baden-Powell. [2] *Ibid.*, p. 38.

the cultivation of the adjustment of the eye as an optical instrument, this will not in itself account wholly for the increased skill in observation so acquired. Probably the larger part is due to training of the perceptual powers in extremely minute differentiation of the sense-continuum, or sense-data.

Or take an illustration from another sense—the sense of taste. The following story was told to the writer by the perpetrator of the joke played upon the guest :—

> "I was expecting a friend to lunch with me one day, and on the morning of the day I suddenly realised that I had no port wine which I cared to offer him, as he happened to be a connoisseur. It then occurred to me to make a blend, which I did of the wine from two bottles, and placed it ready for lunch in a decanter. After lunch, when the port was placed on the table, I watched with interest to see the expression on his face at his first taste. After tasting it a mild wonder awoke in his eyes, and putting down his glass he asked me, "What do you call it?" "Well," said I, "suppose I were to call it '68." "Bah! man," said he, "pass a sip of that across your tongue and you will perceive as clearly as possible that *there are two wines there*."

This again is an illustration not necessarily of any special sensibility of the taste organs but of the high cultivation of the perceptual powers in differentiating the sense-continuum produced by port wine.

In all these cases with the different sense organs, the result of this increased power of differentiating the sense-data or sense-continuum is to bring new

concepts into the consciousness of the moment. As at the beginning of these pages we saw how new streams of percepts were acquired by the mind in order to differentiate fully the violin concept and make it more exact, and that this process involved the continual formation of new concepts, so now we see that the cultivated power of differentiating percepts is also a new and immediate method of forming new concepts. In the case of the two friends on their country walk, the perceptual powers of one of them brought the hare concept at once into the field of view; in the case of the port wine the cultivated perceptual powers resolved what to many would have been one wine quite clearly into two.

Or the same thing may be noticed in the sense of hearing, as in the following:

> "Twig-snapping is the great index to all that passes in the wilderness. Curiously enough no two animals can break even a twig under their feet and give the same warning. The *crack* under a bear's foot, except when he is stalking his game, is heavy and heedless. The hoof of a moose crushes a twig, and chokes the sound of it before it can tell its message fairly. When a twig speaks under a deer in his passage through the woods, the sound is sharp, dainty, alert. It suggests the *plop* of a raindrop into the lake."[1]

It takes no doubt a considerable time to learn to differentiate exactly between these different sounds, yet the sense-data present them alike both through ears which are and ears which are not accustomed to them, and the training necessary is a training of

[1] *School of the Woods*, by William J. Long.

the perceptual powers in the art of reading what the sense-data record through the ear.

This same training of the perceptual powers in the sphere of auditory cognition lies at the base of all teaching of music. The differential perception of intervals in a chord, of the different instruments in an orchestra, of all the elements in melody, harmony and rhythm which are of the very essence of musical understanding and intelligent appreciation—all this depends upon the differential perception of the sense continuum transmitted through the internal ear. This is often called aural culture, but it is in reality not a training directed towards making the ear more efficient as an instrument, but only a training of the perceptual powers in their work of differentiating and interpreting the auditory sense-data.

This cultivated power of differential perception, which we have seen to be a necessary part of mental training, is not a general "perceptual faculty" which can be cultivated *per se* and switched off and on from one sense to another. It has to be cultivated for each sense by itself, and its increase in perfection in the case of any one or more senses goes *pari passu* with, and is contingent upon, a corresponding increase in conceptual knowledge of the same order—*pari passu* with a large increase in the number of concepts in that particular sphere of cognition. A tea taster, for example, upon tasting a sample of tea is often able to state that it was grown in such a year at such a place, that the weather was unfavourable for the crop a month before it was gathered, and that it was sold in such

a year at such a price in the London market. Information such as this can often be given by an expert taster as the result of a single taste, but it is a specialised power contingent upon his conceptual knowledge of the various gustatory qualities of a large number of different kinds of tea, and by no means extends to other substances in the same degree of perfection. On the contrary it is usually necessary for the expert taster to refrain from tasting some substances lest they should vitiate his special taste for tea.

As the writer sits writing these words there is on the wall opposite his chair a bookcase containing twenty-four compartments of books. At the distance at which he is writing it is impossible for him to read any of the titles, and yet he can recognise many of the volumes and identify them with ease. At the end of one of the compartments is Balfour's *Foundations of Belief*, next to it Fyffe's *History of Modern Europe*, then Kingsley's *Roman and Teuton*, then *A Century of Parody*, then *Great Battles of the British Navy*. In the compartment below are, A. C. Benson's *Ruskin*, then Bacon's Essays, then a volume which the writer fails to identify, then Belcher's *Essentials of Architecture*, then Lord Courtney's *Working Constitution of the United Kingdom*. But while he is severally and in succession identifying these volumes all the other books in the case are clearly seen, and also articles on the walls beyond the bookcase as well as chairs and other articles of furniture in the room. All these as well as the identified volumes contribute to the entire sense-continuum or the sense-data,

and his ability to differentiate the above-named volumes from the many others depicted round them, and to do this in a position from which he is unable to read the titles depends on the conceptual knowledge previously in his mind, such as the knowledge that he possesses these books, that they are on the shelves, their probable positions on the shelves and some conception also of the different ways in which they are bound and lettered. If, however, the writer were to see these same volumes in a strange room, on strange shelves, and interspersed with others with which he was unfamiliar, he would probably be as unable to recognise most of them as the townsman was to recognise the hare during the walk alluded to on a previous page.

The interaction which has been here taking place between the perceptual and conceptual elements[1] has been a process in which certain groups of concepts have been "recalled" from the subconscious mind to the consciousness of the moment by new streams of percepts, and have also been re-endowed for the moment with details which had been lost owing to lapse of what we call "memory"; and simultaneously and conversely the conceptual content of the mind has been utilised to aid the differential perception of the sense-continuum, or to differentiate the percepts.

And the nature of this interaction of percepts and concepts, both here and in the process of differentiating the violin concept, may be sum-

[1] "Percepts and concepts interpenetrate and melt together, impregnate and fertilise each other. Neither, taken alone, knows 'reality' in its completeness. We need them both as we need both our legs to walk with." *Prob. of Philos.*, by Wm. James, pp. 52, 53.

marised—with as much approximate accuracy as is usually possible in a brief phrase—as a process of "differentiating and correlating percepts and concepts." In the case of the violin the flow of percepts was the means by which the violin concept was gradually differentiated, in the case of the books the conceptual contents of the mind were utilised to aid in differentiating the percepts acquired from the sense-continuum through the retina.

There is great truth, but not the whole truth, in the old saying that a man sees in any view or picture or other work of art what his mind brings to the examination of it.[1] A sculptor in the galleries of the British Museum will see in the Elgin Marbles the beauty of form and line which mark them as precious fragments of the creative genius of one of the great art periods in human history. A child among the same statues may see only at the same moment "a glorious place to play hide and seek."[2] And the complementary truth is that the growth from one condition to the other is brought about by the gradual refinement of the power of differential perception of the visual sense-data with the aid of the ever-extending

[1] "Whilst halting on a certain occasion in front of one of the most beautiful views obtainable of Grasmere and its hills, a lover of the Lake Country was accosted by a Manchester tripper, and had to find an answer to the query, 'Is there *anything* to see in this place?'" "The Nature and Development of Attention," by G. Dawes Hicks, *Brit. Journ. of Psychology*, June 1913.

[2] "Consider any object presented to the senses, how various and almost infinite its qualities are, and how impossible it is for any man, even the most trained observer, to perceive them all. *Each will first perceive those qualities that are most nearly related to him and that appeal to his liking.*" *Swindon Address*, by Robert Bridges, Poet Laureate, Oct. 1916.

and more highly differentiated conceptual contents of the mind.[1]

Every act of perception would seem to involve the commingling and the interaction of what we may call *a priori* data and what are called sense-data. The *a priori* data include the conceptual contents of the mind and also the affective, emotional or emotive quality which activates all knowledge in its application. Mr Bertrand Russell tells us that "all *a priori* knowledge deals exclusively with the relations of universals."[2] Doubtless this is so in the case of a logician like Mr Russell, but it may perhaps be permissible tentatively to question the dictum if it be applied to an ordinary man in the street, and to wonder whether in his case *a priori* knowledge does not deal also with the relations of *particulars masquerading as universals*, and whether this may not be one of the deeper sources of the ever-springing fountain of error.

We have now seen that there are at least three different ways in which sense-perception leads to the growth of knowledge by the formation of new concepts.

(1) By the direct act of perception through one sense, or by the correlation of percepts acquired from different sense organs as

[1] "Kant's view was that the two faculties (understanding and perception) though quite distinct—so that one could not conceive of the one as a form or modification of the other—yet were so mutually interdependent that neither perception without understanding nor understanding without perception could yield us any knowledge. Without understanding, perception would make nothing of what was perceived; without perception, understanding would have nothing to understand." *History of Philosophy*, by Clement C. J. Webb, p. 191.

[2] *Problems of Philosophy*, p. 162.

we saw in the case of the concept of the violin.

(2) By the differentiation of concepts achieved by correlating with them new percepts, as we saw in the case of the violin, time, happiness, etc.

(3) By the differentiation of percepts, or the differential perception of the sense-data or sense-continuum furnished by the different sense organs.

And if we now return for a moment to the two violinists experimenting with their instruments and go once more through the procedure there sketched, a little consideration will show us that apart from the actions or motor activities involved, and the feelings of satisfaction or otherwise which have been experienced during the work, the mental operations have consisted of nothing more than the acquiring, differentiating and correlating of percepts and concepts: in other words, the power of acquiring, differentiating and correlating percepts and concepts is the essence of the power of comparison and judgment.

But human effort can rest content with nothing less than the discovery of the relations which exist between *all* concepts: the relations, that is, between the concepts over the whole range and in all the branches of human knowledge, the integration of all our concepts, the unification of all our knowledge. This is the function and constant aim of philosophy; and the essentials of the mental processes by which its work is effected

and of which mankind is so proud are perhaps only four in number—acquiring, differentiating, correlating and integrating [1] percepts and concepts.

It has been said that if you take all the physics and physiology out of psychology there is nothing left except mathematics! Well! there do seem to remain just these few ways of dealing with percepts and concepts, and fortunately they seem enough to account for those ripples on the surface of existence which are the result of what we designate human thought.

But the world of perception is immeasurably wider than that of mere sense-perception as that term is usually understood. It includes also what has been called intuitional or supersensuous perception, organic perception and also the perception of the emotional and æsthetic elements which enter into consciousness: the perception of the passing moods, and the feelings of joy, of sorrow, of hope, of love, and so through the whole gamut of human emotions and passions. It would seem that we must recognize other percepts [2] as well as, and as distinct from, sense-percepts; and it is perhaps owing to the mingling of these different kinds of percepts whether by accidental association, or by selective and purposive correlation, that there

[1] "I agree that the laws of thought are only the integration of relations between facts." *Creative Evolution*, p. 389.

[2] "We have distinguished three parts in the system of an emotion: (1) that part which is in consciousness and is alone the felt emotion; (2) that part which is organised in the body; (3) and that part which is present in our behaviour and accessible to external observation." *The Foundations of Character*, by A. F. Shand, p. 185.

"That the emotion as a fact of consciousness may properly be distinguished from the cognitive process which it accompanies and qualifies is, I think, obvious and indisputable." *Social Psychology*, by Wm. McDougall, 7th edition, p. 49.

are formed the "complexes" or "psychoses" of conceptual and emotional elements whose nature and workings it is the business of psychology to study.

It now remains to see how the manipulation, grouping and re-grouping of these elements of thought are made to constitute some of the more important of the various mental processes with which we are acquainted.

CHAPTER IV

OBSERVATION AND INFERENCE

OBSERVATION is *the disciplined exercise of the faculties of acquiring, differentiating and correlating percepts and concepts.*

"Now, the first, and certainly in student-life the only safe, means for becoming scientific in our profession is the training of the mind in the power and habit of accurately observing facts. Medicine and surgery are eminently a science of observation; deductions from facts are always unsafe; I believe that they have done far more harm than good; and, for the most part, when sufficient facts have been collected and arranged, the general conclusions that may justly be drawn from them are nearly manifest. The main thing for progress and for self-improvement is accurate observation. Some seem to think it easy to observe accurately—they cannot doubt, as they say, the evidence of their senses. There are few greater fallacies. In scientific studies the evidence of the senses needs as much cross-examination as any evidence given in a criminal trial. Self cross-examination it may be, but it must be steady and severe. For by accurate observation we must mean not the mere exercise of the senses, not the mere seeing, or hearing, or touching of the thing, with some levity of thinking about it—we must not mean even the keenest use of the eye cultivated in microscopic work, or of the ear hearing sounds that to the uneducated sense would be inaudible, or the use of the finger with the most refined detective touch. All these higher

powers of the senses you must acquire by careful study and practice, and you must learn to exercise them with all the attention with which a strong will can direct and watch them ; but even all this, difficult as it is, is only a part of scientific observation. This must include, besides, an habitual constant watchfulness, the taking notice of all the conditions in which objects or events are found ; their concurrence, their sequences, their seeming mutual relations, all their variations. To do this, and to do it again and again, and with constant care, whether it be in things occurring naturally or in experiments—to do this accurately and always is really very difficult. A few seem to have the power naturally ; there are some born naturalists, some born physicists ; you have had some here ; but in nearly all men, and, you may safely believe, in yourselves, the power to observe accurately needs careful self-training, self-suspicion, and self-discipline." [1]

In this admirable statement of the aims and methods of scientific observation as distinguished from desultory or casual observation, Paget was talking of " the training of the mind in the power and habit of accurately observing *facts*." But the whole process and method thus described is included in our definition of observation as " the disciplined exercise of the faculties of acquiring, differentiating, and correlating percepts and concepts." For we have already seen that what we call " facts " are in reality only concepts or clustered groups of concepts, and as such are often the mere residue or product of various passing phases of perceptual experience. Indeed in that category of experience of which Paget was speaking " facts "

[1] The late Sir James Paget. Address at opening of Medical Session, 1887–8, the Owens College.

might almost be defined as detached and isolated fragments of experience torn away from the continuity of that experience and in some measure falsified by that very process. And so it becomes the duty and work of the scientific observer to establish "all the conditions in which objects or events are found, their concurrence, their sequences, their seeming mutual relations,"—in short, to reconstruct that very continuity apart from which detached and isolated "facts" may often be little more than groups of *mis*-conceptions. Following this line of thought we see at once the exceeding aptness of M. Bergson's illustration of the cinematograph film. Our intellects form concepts from our passing experience, and so cut up that experience into detached fragments which may be likened to the single pictures of the film. Taken singly by themselves these concepts are, like the single pictures on the film, in some measure distortions of the passing experience, and only become relatively true when "their concurrence, their sequences, their seeming mutual relations" are restored, as the semblance of reality is restored to the pictures on the film, by the cinematograph moving at the appropriate speed. The old saying that "there are nothing so fallacious as facts except figures and nothing so fallacious as figures except facts" is not merely a satirical witticism, it expresses one side of the paradox of human truth.

Of the late Sir Jonathan Hutchinson it was said:—

> "He watched the phenomena of disease with unremitting vigilance, fully convinced of the truth of

Faraday's famous dictum that new knowledge is constantly passing under our eyes but escaping our observation ; and in this sense often quoted Browning's line, 'I tell you men won't notice ; when they do they'll understand.'"[1]

"Some years ago, at Göttingen, a meeting of men of science was taking place during a time of carnival, when a wild scene was forced upon their notice in order to test their accuracy of observation. A clown dashed suddenly into the meeting with a negro holding a revolver in pursuit. They exchanged violent phrases. One fell and the other leapt upon him. Then there was a shot, and both rushed out of the room. No one but the President (who had arranged it) knew that it was a rehearsed and deliberate scene. When it was over — and it lasted less than twenty seconds — he gravely asked those present each to write down an exact report of what had occurred, as the matter was likely, he said, to come before the courts. Forty reports were submitted, but, Professor Münsterberg tells us, there was only one of the forty which omitted less than twenty per cent. of the leading incidents that had occurred. Fourteen omitted between twenty and forty per cent., twelve between forty and fifty per cent. and thirteen more than fifty per cent. Nor were most of them content with mere sins of omission. There were only six of the forty who did not add pure inventions of their own. Four of them noticed correctly that the negro had nothing on his head. Others gave him a 'Derby,' a tall hat, or something else on his head. His costume was variously described as a red suit, a brown suit, a striped suit, a coffee-coloured jacket, shirt sleeves, and so forth, though he had actually worn a black jacket, white trousers, and a red necktie. 'The scientific commission who reported the details of the inquiry,' adds Professor Münsterberg, 'came to the general statement that the majority of

[1] Jonathan Hutchinson, Obituary Notice, *Times*, June 1913.

the observers omitted or falsified about half of the processes which occurred completely in their field of vision.'"[1]

The results of this experiment by the late Professor Münsterberg present us with a happy illustration of the difficulties of observation as set forth by the late Sir James Paget, and they also bring us to another mental process which we all too frequently employ—the process which we call "inference."

Inference

If we return once more by way of illustration to our jig-saw puzzle we may find on taking it out of its box and putting it together that one or more of the pieces are missing. After placing in position all the pieces we can find, there may be one or two, or more lacunæ indicating the positions of the missing pieces, and according to the size and shape of the lacunæ we *infer* the number and shape of the pieces required to fill each. In the case of a small one of the approximate size of the generality of the other pieces of the puzzle we *infer* that one piece is needed to fill it, and we can further infer the precise size and shape of the missing piece, and also a great deal about the portion of the picture which is on its surface. We can tell a good deal about the design on the piece since it will obviously have on it the missing portion of that part of the whole picture. We can tell also from the immediately surrounding pieces a good deal about the colour which will be on its surface, and all these

[1] "On Telling the Truth," *The New Statesman*, 24th January 1914.

particulars we can correctly *infer* without having ever seen the missing piece before. We cannot indeed infer *all* the missing particulars of the complete picture, and if half a dozen people were each separately to draw and colour the design on the missing piece, there would certainly be six different reconstructions of the absent portion. In some particulars they would all be alike, in others they would all be different. By placing a sheet of paper beneath the puzzle and tracing with a pencil round the lacuna all would obtain an outline of the absent piece, correct in size and in shape. All too could correctly infer the positions on the outline of the various contour lines of the general design, where these ended abruptly at the margins of the missing piece, and also the general direction of these lines. All could also correctly colour the immediate margins of the reconstructed piece between these various contour lines, but here or hereabouts the resemblance of the six pieces would cease, and in filling up the greater part the individual feelings, conceptions and artistic capabilities of the six people would severally determine the completion of the six designs. Each would complete his portion according to his artistic preferences and tastes, his expectations and his guesses as to the part of the picture on the missing piece.

In these various attempts at filling the lacuna we have illustrations of the two great types of inference. In those particulars which could be correctly inferred from the surrounding pieces, viz., the size, the shape, the positions of the continuing lines of the design, and the positions and tints of the colour-

ing at the margins, we have illustrations of rational or logical inference. In those particulars which depended on the artistic preferences and taste, on the expectations and guesses of the six people, we have illustrations of psychological or non-rational inference. But both types have this in common that they "involve a jump, a leap, a going beyond what is surely known to something else accepted on its warrant."[1]

Let us take as further illustrations of logical inference the familiar one, of Harvey's discovery of the circulation of the blood, and one from Sir Robert Baden-Powell's *Aids to Scouting*.

After Harvey had completed his anatomical investigations, human and comparative, and proved that it was the contraction and not the dilatation of the heart which coincides with the pulse: that the ventricles act as true muscular sacs which squeeze their fluid contents into the aorta and pulmonary arteries: that there are no pores in the septum of the heart and therefore that the whole of the blood in the right ventricle is sent to the lungs, and the whole of the blood in the left ventricle into the aorta and great arteries: that the valves in the veins necessitated a constant stream of blood to the heart from distant parts and prevented harmful undulation in the veins:—at the completion of his long chain of induction there was still a lacuna which he was able to fill only by *inference*; he

[1] "The exercise of thought is in the literal sense of the word *inference*; by it one thing *carries us over* to the idea of and belief in another thing. It involves a jump, a leap, a going beyond what is surely known to something else accepted on its warrant." *How We Think*, by John Dewey, p. 26. See also *Problems of Philosophy*, by Hon. Bertrand Russell, and *Human Nature in Politics*, by Graham Wallas.

inferred that the smallest of the arteries became continuous with the veins by still smaller vessels which he was unable to demonstrate. This lacuna was filled three or four years after his death by Malpighi with the aid of the newly invented microscope, which enabled him to show in the lungs of the frog how the blood passes from one set of vessels to the other.

And take the following :—

"I was riding one day across an open grass plain in Matabeleland, with one native, scouting. Suddenly we noticed the grass had been recently trodden down ; following up the track for a short distance, it got on to a patch of sandy ground, and we then saw that it was the spoor of several women and boys walking towards some hills about five miles distant, where we believed the enemy to be hiding. Then we saw a leaf lying about ten yards off the track—there were no trees for miles, but there were, we knew, trees of this kind at a village 15 miles distant, in the direction from which the tracks led. Probably, then, these women had come from that village, bringing the leaf with them, and had gone to the hills. On picking up the leaf, it was damp and smelled of native beer. So we guessed that according to the custom of these people (remember, as I said before, to study the habits and customs of your enemy) they had been carrying pots of native beer on their heads, the mouths of the pots being stopped with leaves. One of these leaves had fallen out ; but we found it ten yards off the track, which showed that at the time it fell the wind had been blowing. There was no wind now, but there had been at about five a.m., and it was now nearly seven. So we read from these signs that a party of women had brought beer during the night from the village 15 miles distant, and had taken it to the enemy on the hills, arriving there about

six o'clock. The men would probably start to drink the beer at once (as it goes sour if kept for long), and would, by the time we could get there, be getting sleepy from it, so we should have a favourable chance of reconnoitring their position. We accordingly followed the women's tracks, found the enemy, made our observations, and got away with our information without any difficulty."[1]

Of psychological inference the jig-saw puzzle and the Göttingen experiment have already given us illustrations, and it may be said that where a logical inference runs counter to a man's predominant passions, it has little chance against a psychological one. "Let ever so much probability hang on one side of a covetous man's reasoning, and money on the other, it is easy to see which will outweigh."[2]

"PORTIA: Therefore for fear of the worst, I pray thee, set a deep glass of Rhenish wine on the contrary casket; for, if the devil be within, and that temptation without, I know he will choose it."—*Merchant of Venice.*

The late Sir James Paget in the lecture from which we have already quoted gives his caution as to the errors which arise through psychological inference:—

"It would need some volumes to relate all the sources of error in scientific observation. I will mention only one, for I think it is the most frequent, and I should like you to be always watching against it. It is the habit that we have of inserting something of our own, something of our beliefs, of our expectations, nay, even of our wishes, into that which we think or say that we observe.

[1] *Aids to Scouting*, pp. 65, 66.
[2] Locke on Human Understanding, quoted by Dewey, *How We Think.*

"There is a very common proverb that 'seeing is believing,' and many, as if trusting it, say, 'I must believe what I see.' It is often unwise to do so; for the sight, without the aid or control of other senses, is often fallacious. But there are many in every walk of life who, when they say 'I believe what I see,' might just as fairly say, 'I see what I believe'; and these, though they are usually in the wrong, are usually the most positive in their assertions. They believe what they wish, and then they see what they believe; and then they become unable either to see or to believe anything contrary to their wishes—anything contrary to what they call their clear convictions. Well, as a man may see an unexpected likeness of himself in a caricature, so may we all see a defect of our own exaggerated in people such as these. We are all apt to see what we expect to see, forgetting that everything brought within the range of human knowledge is brought also within the much wider range of human error."[1]

The late Professor Münsterberg in *Psychology and Crime* gave us an excellent example of this "habit of inserting something of our own, something of our beliefs, of our expectations, nay, even of our wishes, into that which we think or say that we observe"; in other words, the habit of psychological inference:

"Last summer I had to face a jury as witness in a trial. While I was with my family at the seashore my city house had been burglarised, and I was called upon to give an account of my findings against the culprit whom they had caught with a part of the booty. I reported, under oath, that the burglars had entered through a cellar window, and then described what rooms they had visited. To prove, in answer to a

[1] The late Sir James Paget.

direct question that they had been there at night, I told that I had found drops of candle wax on the second floor. To show that they intended to return, I reported that they had left a large mantel clock, packed in wrapping-paper, on the dining-room table. Finally, as to the amount of clothes which they had taken, I asserted that the burglars did not get more than a specified list which I had given to the police.

"Only a few days later I found that every one of these statements was wrong. They had not entered through the window, but had broken the lock of the cellar door; the clock was not packed by them in wrapping-paper, but in a tablecloth; the candle droppings were not on the second floor, but in the attic; the list of lost garments was to be increased by seven more pieces; and while my story under oath spoke always of two burglars, I do not know that there was more than one."[1]

Another example of psychological inference was seen in the great legend about Russian soldiers which spread itself over England in August and September 1914. Originating, it has been said, in the unwarrantable disclosure of a telegram to an egg merchant, to the effect that 200,000 "Russians" (eggs) had been dispatched from Archangel to Aberdeen, it grew rapidly, by confidential communication, into a legend almost surpassing in wonder any with which a political mountebank ever deluded a gaping audience. "Great bearded men talking a foreign language" (men from the North of Scotland talking Gaelic) had been seen and heard in trains going to the South through York; had been seen later on Salisbury Plain; people living on the Eastern

[1] *Psychology and Crime*, by Hugo Münsterberg, pp. 39–40.

Railway lines had been kept awake all night by innumerable trains full of soldiers running to the South of England ; these supposed Russians were to fall on the exposed right flank of the German line not then completed to the sea ; photographs of the Russians after they had landed in France were actually published with full particulars in the daily press. The enthusiasm and excitement grew daily more intense. Denials of the fact by responsible Ministers only gradually dispelled the belief, and it remained for a wag to administer the final cold douche by asserting that on opening a railway carriage door to look at the soldiers—snow fell out !

. . . . .

It is one of the commonplaces of our daily experience that sense perception, by recalling to our consciousness certain groups of concepts, also generates simultaneously certain related emotional conditions. In psychological inference we have the converse process taking place in which certain likes or dislikes or affections or prepossessions call up such concepts as will fill in a manner agreeable to such feelings any lacunæ in the conceptual groups which occupy our consciousness at the moment.

Mr Wells' discovery that "*The forceps of the mind are clumsy forceps, and crush the truth a little in taking hold of it*,"[1] tells, alas ! only one half of the ugly story ; and the other half is that, in striving to repair the injuries thus inflicted, the mind often

[1] *First and Last Things*, by H. G. Wells. Revised edition, 1917, p. 19.

manages to unite the crushed fragments into a form quite different from the original. Here is an amusing example from the *Hamburger Nachrichten* of the kind of obsession which may be produced by this reparative mental process, after Mr Wells' forceps have done their work:

> "At last what we have so long hoped for is being done. England must be struck at the most vulnerable point, and must feel that she can no longer comfortably stand aside and rob and cheat and practise every brutality, while she is represented on the European Continent by mercenaries, the scum of her people, who play football with German bread, and expose to their criminal tools of murder the valuable life of our healthy, gifted, and educated youth, the spring-time hope for the future of our race. Our people is struggling and offering sacrifices for Emperor and Empire, for its existence and its future, and these things cannot be sacrificed to moral superstitions. What have we in six months achieved with our noble-spirited conduct of war? Calumnies and hatred and bitter hostility everywhere."[1]

The antithesis of knowledge is not always ignorance—more often, perhaps, it is error or falsity generated in part by the process of psychological inference; and on its intellectual side Education is to a large extent the cultivation of the power of substituting logical inference for psychological.

[1] *The Times*, 9th February 1915.

CHAPTER V

INTELLIGENCE, IMAGINATION, REASON

"*I doubt if we shall ever be able to produce an intelligent definition of intelligence.*"—L. P. Jacks.[1]

This may be so if we regard the concept in the traditional Platonic fashion as an element of thought which never varies, but if we regard it as an element which is constantly varying and being remoulded by means of new percepts the problem of intelligence becomes so much simplified that it may almost be said to solve itself.

Intelligence may then, perhaps, be defined as "*the disciplined power of supplementing and refashioning the conceptual content of the mind by means of, or in response to, new perceptual experience.*"

The preceding sections illustrate with sufficient fullness the working of "intelligence" as thus defined, and further illustrations may be found on almost any page of *Scouting for Boys*, but it is necessary to note that the word "perceptual" is here used with a far wider signification than in the chapter on "Sense-Perception": for example, we may put our hand on some material object and

[1] *From the Human End*, p. 55.

it *feels*[1] hard or soft or rough or smooth or hot or cold (sense-perception); or we ourselves may *feel* hot or cold or hungry or thirsty or tired or sleepy (organic perception); or we may *feel* agitated or angry or fearful or happy or loving or jealous (emotional perception); or we may *feel* that this object is beautiful and that ugly (æsthetic perception); or we may *feel* that

> "Our wills are ours, we know not how:
> Our wills are ours, to make them Thine"

(intuitional perception); and these different kinds of perception, experienced in infinitely varied combination with different concepts, may perhaps be regarded as furnishing the raw materials from which the conceptual and emotional complexes of the mind become gradually organised.

Imagination

Imagination is *the formation of images by the "correlation" and "integration" of percepts and concepts.*

[1] Sir Charles Sherrington has assigned the various sense or receptor organs into three categories:—

(1) The interoceptors or visceral receptive organs.
(2) The exteroceptors or somatic sense organs.
(3) The proprioceptors; a system of sense organs found in muscles, tendons, joints, etc., to regulate the movements called forth by the stimulation of the exteroceptors.

The Integrative Action of the Nervous System, Lecture iv.

In a review of *National Intelligence Tests* we read that:—

"When we carefully scrutinise these intelligence tests we are not in the least surprised that at a recent symposium of fifteen American psychologists no two of them were agreed as to what intelligence was—what it was that the mental tests really measured." *Times Educational Supplement*, 24th December 1921.

These images may be expressed by means of : 1. Words—by the speaker, writer and poet : 2. Colour—by the painter : 3. Form—by the sculptor and handicraftsman : 4. Sound—by the musician. Take as an example the exquisite and well-known passage in the speech of Theseus in *A Midsummer-Night's Dream* :

"The poet's eye, in a fine frenzy rolling,
Doth glance from heaven to earth, from earth to heaven ;
And, as imagination bodies forth
The forms of things unknown, the poet's pen
Turns them to shapes, and gives to airy nothing
A local habitation and a name."

Or take the passage on the music of the spheres which Hallam considered to be perhaps the most sublime in Shakespeare :

"Look how the floor of heaven
Is thick inlaid with patines of bright gold :
There's not the smallest orb which thou behold'st
But in his motion like an angel sings,
Still quiring to the young-eyed cherubins ;
Such harmony is in immortal souls ;
But whilst this muddy vesture of decay
Doth grossly close it in, we cannot hear it."

Or take the great image of Milton :

"No light but only darkness visible."

Or take this from Shelley's *Adonais* :

"The One remains, the many change and pass,
Heaven's light for ever shines, earth's shadows fly ;
Life, like a dome of many-coloured glass,
Stains the white radiance of Eternity,
Until death tramples it to fragments."

Or take the stanza in *Locksley Hall* which Tennyson regarded as one of those which to the end of his life gave him the most enduring pleasure :

" Love took up the harp of Life and smote on all the chords with might ;
Smote the chord of Self, that, trembling, pass'd in music out of sight."

What are all these but illustrations of the formation of mental images by means of concepts and the integration of these separate images into harmonious pictures, much as the artist who expresses his thoughts by means of painting makes studies of objects, figures and groups, and finally blends them all into the larger composition.

And when language, painting and sculpture have done their best, and told as much as they can of the yearnings and emotions of man's restless nature, music may carry on the theme into regions where words and colours and forms halt and fail, but where melody, harmony and rhythm, speaking together in yet finer accents, may convey, by means of their wedded graces, still more penetrating shades of emotional meaning.

" ' Ha'e ye ever heard the pipes ? '

" ' Why, yes, but long ago.'

" ' Then,' said Donal', ' ye shall juist hear 'em again.'

" So saying, he wiped his mouth, took up his instrument, and began slowly inflating it.

" Then, all at once, from drones and chanter there rushed forth such a flood of melody as seemed to sweep me away upon its tide.

" First I seemed to hear a roar of wind through desolate glens, a moan of trees, and a rush of sounding waters ; yet softly, softly there rises above the flood of

sound a little rippling melody which comes, and goes, and comes again, growing ever sweeter with repetition. And now the roar of the wind is changed to the swing of marching feet, the tread of a mighty host whose step is strong and free ; and lo ! they are singing, as they march, and the song is bold and wild, wild, wild. Again and again, beneath the song, beneath the rhythm of marching feet, the melody rises, very sweet but infinitely sad, like a silver pipe or an angel's voice tremulous with tears. Once again the theme changes, and it is battle and death, sudden and sharp ; there is the rush and shock of charging ranks, and the surge and tumult of conflict, above whose thunder, loud and clear and shrill, like some battle-cry, the melody swells, one moment triumphant, and the next is lost again.

" But now the thunder rolls away, distant and more distant—the day is lost and won ; but sudden and clear, the melody rings out once more, fuller now, richer and complete, the silver pipe has become a golden trumpet. And yet, what sorrow, what anguish unspeakable rings through it, the weeping and wailing of a nation ! So the melody sinks slowly, to die away in one long-drawn, minor note, and Donal' is looking across at me with his grave smile, and I will admit both his face and figure are sadly blurred." [1]

But the reading of this does not dim the eyes although the music did !

What is called the " Scientific Imagination " is concerned with the " correlation " and " integration " of percepts and concepts in that universe of thought which we designate Science.

1. In abstract or theoretic science as seen in the generalisations and laws of Aristotle, Galileo, Newton, Darwin, Kelvin, Mendel, Karl Pearson, Mendeléeff, etc., etc.

[1] *The Broad Highway*, by Jeffery Farnol, p. 170.

2. In applied science as seen in

The Steam Engine . .	Watt.
The Locomotive . .	Stephenson.
The Telegraph . .	Wheatstone.
Wireless Telegraphy .	Marconi.

etc., etc.

Into scientific laws and generalisations of facts only the conceptual elements of thought enter, but the perceptual elements must necessarily enter largely into the living mental processes by which those laws and generalisations were reached and by which Stephenson, *e.g.* laboriously won his way to success through the problems which confronted him in designing and constructing the "Rocket," and by which all applications of knowledge in whatever sphere of thought are brought to fruition. In the mental processes which go to the formation of any work of imagination whether in the sphere of literature, or painting, or sculpture, or music, or in abstract or applied science, the perceptual powers must in the nature of things be entering continually although the work when finished will have become entirely conceptual. For "*the intellectual life of man consists almost wholly in his substitution of a conceptual order for the perceptual order in which his experience originally comes.*"[1]

Reason

Reason is regarded by Professor Hobhouse as the impulse of consciousness to weave its experi-

[1] Quoted by James, *Some Problems of Philosophy*, p. 51, from *The Philosophy of Reflection*, by S. H. Hodgson.

ences into an inter-connected whole ;[1] and the mental processes by means of which this impulse seeks to achieve its aim are the processes of *acquiring*, *differentiating*, *correlating*, *and integrating percepts and concepts*.

One of Professor Hobhouse's contentions is that " in the development of Mind, the elaboration of the conceptual order " (Conceptual Reconstruction), " appears not as an end in itself, but as preparatory to a higher effort "[2] which it reaches in " Experiential Reconstruction " which " involves what we may call briefly a correlation of Mind products with their conditions."[3]

But most important amongst the conditions in which the mind products are formed is the stream of *percepts* which may be said to furnish the raw material for the conceptual products. " Fixed concepts may be extracted by our thoughts from mobile reality, but there are no means of reconstructing the mobility of the real with fixed concepts " ;[4] nor even perhaps with the supple, mobile concepts which Bergson desiderates, but only by combining with the concepts a presentation of the perceptual flow in which the experience actually comes.

Here is an example of " Experiential Reconstruction." The presentation of the perceptual

[1] " Rational thought is no longer limited to the apprehension of a fully and finally established system. It becomes rather an impulse working towards an ideal, organising the acquired results of experience into a coherent whole and extending them by persistent investigation. Thus Reason in general may be briefly defined as the impulse towards interconnection." *Development and Purpose*, p. 276.

[2] *Ibid.*, p. 150. [3] *Ibid.*, p. 166.

[4] *Introduction to Metaphysics*, by H. Bergson, p. 58. Trans. by T. E. Hulme ; Macmillan, 1913.

element will be seen to pervade it from end to end, and is that which gives it life, and endows it with the verisimilitude of experience itself:

TEACHING II.B [1]

"It was the last lesson of a hot, sultry afternoon, and I had to face the task of persuading II.B to believe that 'a noun is the name of something.' In response to an appeal that I should tell them a tale 'because it's so hot and stuffy,' I replied that I would tell them about something called a noun. Their faces fell instantly, for they were not ignorant of the fact that nouns come under the head of grammar. To the accompaniment of long-drawn-out sighs I wrote on the blackboard, 'Rabbits eat clover.' Instantly several hands shot up—the scholars are not allowed to call out—and I saw with satisfaction that I had secured their interest. 'Well, Cooper?' I said to a boy who will be a living encyclopædia when he grows up, if he remembers the answers to all the questions he asks.

"'Please, sir,' he replied, standing on one leg and leaning over the desk in his excitement, 'I have a rabbit.'

"Another boy immediately volunteered the information that he had two. This led to an animated discussion, in which scant respect was paid to the chairman, as to the number of rabbits possessed by various claimants. Sutcliffe headed the list with seven, much to the indignation of Jones, who owned five, and who said that six of Sutcliffe's were only three weeks old, and therefore ought not to count for as much. I cut short the argument by pointing to little Shannon, who seemed desirous of imparting some information. 'Shure, sir-r,' he said, 'it's not rabbits I keep, but white rats, and one got its tail under the door yesterday.' Thirty pairs of eyes instantly turned in his direction; he was the hero of the moment. 'It

[1] *Manchester Guardian*, 29th May 1913.

squeaked like anything,' he added. This remark was greeted with a loud outburst of laughter. H.B's sense of humour may be primitive, but there is no cant about it.

"Shannon was quite prepared to give a full account of his rat's chequered career, and he would have been assured of an attentive audience, but I broke the spell by calling on a boy to read out the sentence on the blackboard. 'Rabbits eat clover,' he began, and then added with more earnestness, 'But please, sir, if they eat too much they get stomach-ache.' After hearing the sentence read a second time without comments, I asked, 'Now, what have we been talking about?"

"'Rabbits and rats,' said a quiet boy on the front row.

"'Yes, and what else?'

"'Clover,' he added.

"'Quite right,' I said, delighted to bring them to the point at last. I was about to continue, when I noticed a boy at the back waving his hand frantically to attract my attention.

"'Well?' I asked, looking at him severely.

"'And stomach-ache,' he shrieked in delight.

"As soon as the roar of appreciative laughter which greeted this remark had subsided, I said, to their surprise, 'Quite right. Now the names of all these things about which we have been talking—rabbit, rat, clover, and stomach-ache—are nouns.' I had thrust it in at last, and felt proud of the fact. But as several of the boys seemed anything but satisfied, I turned to another young searcher for truth. 'Are little rabbits nouns as well as big ones?' he asked.

"'Rabbits are not nouns at all,' I said angrily.

"'Please, sir,' said Sutcliffe in his most respectful tones, 'you said they were a bit since, and rats, and stomach-ache.'

"'Yes, sir,' said another, 'I heard you,' and quite a dozen nodded assent.

"'I said the name of a thing was a noun, and not

the thing itself,' I explained. But it was evident that the distinction was considered superfluous.

"At this stage I asked them to write in their books the definition of a noun. As the bell rang out the welcome news that the afternoon was at an end, I picked up the first book, and read :

"'If a rabbit has a name it is a noun. So is a rat and stomach-ache.'"

"WILLIAMS LEIGH."

Some may perhaps demur to seeing "experiential reconstruction," as exemplified by the above, classified as a higher effort of Reason, but since "the different modes of thinking blend insensibly into one another,"[1] and since what we call "Imagination" and what we call "Reason" are to a large extent the exercise of the same psychic processes working with the same materials (percepts and concepts), the meeting point between them may fitly happen round such an experience, and if so the objection would seem to have no logical validity. And should it indeed be that Reason consists merely of these few mental processes by means of which mankind is enabled to play its games of intellectual jugglery with percepts and concepts, it becomes clear how feeble an instrument intellectualism must ever be for moralising society : how impotent a barrier against the insistent claims of instinct. Well might Newman write : "Quarry the granite rocks with razors, or moor the vessel with a thread of silk ; then you may hope with such keen and delicate instruments as human knowledge and human reason to contend against those giants, the passion and the pride of man."[2]

[1] *How we Think*, Dewey, p. 6.
[2] *The Idea of a University*, J. H. Newman, p. 121. (Longmans, 1891.)

CHAPTER VI

THE CONCEPTUAL AND EMOTIONAL COMPLEXES

It is in the nature of the conceptual and emotional complexes far more than in that of the thought processes in the mind of man, that the clue will be found to the formation of ethical character and to many aspects of technique in education.

Under this term are included both what are ordinarily called the "emotions" and the "sentiments." The latter have long been among the conceptions embraced in the intellectual patrimony of mankind and have recently been specifically recognised and studied by the psychologists. But it is as well, perhaps, to recognise even in our terminology that the emotions and sentiments, *e.g.* of love, of hate, of joy, of sorrow, etc., are inconceivable except in immediate relationship with something to love, something to hate, something to have joy over, something to sorrow for; and since the something in all these cases is a conceptual element, an element in the sphere not of emotion but of thought, it would seem that what we ordinarily call an emotion must be a complex of elements of these two aspects of the mind — of conceptual and emotional elements—and this it may be well to recognise by the use of some such

term as that which heads this chapter or for brevity "complexes," a term which has recently come into use since Freud's work has become known.[1] It will be seen from what follows that the writer by no means accepts Freud's views as to the genesis of the complexes. He regards the vogue to which they have attained as the result of the over-seeding and over-growth of a half- or quarter-truth. Oh! Plato! Plato! are you not perhaps partly responsible for the way in which we mortals so often, and so illogically, try to universalise particulars?

The springs of character lie in the mysterious depths of the great heart of man, and the complexes, with their essential ingredients of conceptual elements, will necessarily become more varied and more complex with the continual growth and differentiation of the conceptual side of the mind. The infant at or soon after birth has little else on the conceptual side of its mind than the concept of itself, and after the merely instinctive acts with which it begins its existence have in some measure given place to the beginnings of consciousness and conscious volition, its earliest complex will consist on the conceptual side of the self, and on the emotional side, of that form or variety of love which in combination with the concept of the self we call in later life self-love or self-esteem[2] or the self-

[1] Complex—"A system of connected ideas, with a strong emotional tone, and a tendency to produce actions of a certain definite character." *The Psychology of Insanity*, by Bernard Hart, p. 61.

[2] "Far down, so to speak, below the surface of distinct consciousness, in the intricate formation of ganglion cells and nerve fibrés, the connections between the idea of self and this emotion of esteem have been slowly woven through long ages of animal development." *Illusions*, by Jas. Sully, p. 321.

regarding sentiment. The complex thus formed becomes gradually enlarged with the growth of the conceptual side of the mind as this develops with the continual exercise of sense perception. It begins also to manifest itself in the movements and sounds well known to observers of the human infant, and, according to the environment by which it is influenced, may ultimately result in the formation of a Socrates, an Alfred, a Napoleon or a Kaiser Wilhelm.

Mr Homer Lane[1] in a delightful sketch shows us this initial complex and its gradual growth on both its conceptual and its emotional sides:

> "He had his first misunderstanding with his mother at the age of a few weeks. He had been trying for days to get control of his chubby, unwieldy fist. He had noticed that it was capable of moving, and would watch it for long periods in its spasmodic and purposeless travels. One day he discovered, quite accidentally, that he could move it. He tried to direct it to his mouth. Many long hours did he patiently work to make the tiny fist go where he wanted it to go. Sometimes he succeeded and then his satisfaction was great. He kept at it, always trying to get better control. One day his mother seeing his effort, and thinking that he wanted to put the fist in his mouth, put it there for him. His protest against this interference with his job was immediate and violent. He then began his career of crime. Stiffening his little body he screamed his resentment and beating about with his tiny feet and fists attempted to retaliate for the indignity to which he had been subjected. His mother then established the precedent that was followed by the magistrate twelve years later, and gave him a dose of paregoric,

[1] "Faults and Misdemeanours of Children." *Report on New Ideals in Education*, Stratford-on-Avon, 1915.

thinking it was his interior and not his dignity that had been disturbed.

"In spite of the frequent interference with his job of acquiring control over his limbs, he persevered and became quite skilful in directing his extremities. Each time he met with success in his efforts he gained confidence in his own powers. The only failure he knew was when someone interrupted him in his work and did it for him, or when he was stopped in his efforts because he was noisy. His skill grew. He found that he could grasp objects with his hands and control them. He could move articles about. Once when working with a spoon he discovered that by slamming it on the floor it produced a loud noise. Here was further evidence of his power, obtained by the sense of hearing. He practised his newest accomplishment so faithfully that his mother, annoyed by the noise he made, and that was so pleasing him, took the spoon away from him and gave him a rubber toy. Failing to produce any satisfying results from the rubber such as had so pleased him with the spoon, he *yelled his discontent* and was given another dose of paregoric.

"*He always resented any help.* One day he was playing in a pile of sand with a tiny shovel and pail. Here were new difficulties that delighted his ambitious little soul ; new fields of conquest. The pile of sand was so large that he failed to feel that he could dominate so unwieldy a mass. He could control it better if he could isolate a small portion in the pail. It was difficult. The shovel would turn over and the sand spill out. He knew from past experience that by patient application he would finally gain control of the material. He worked happily, trying repeatedly to fill the pail, not in the least discouraged by the difficulties but rather stimulated by them. He had never met failure if left to his own resources. His mother, fondly watching his aimless play, and pitying his weakness, thinking that he merely wanted

a pailful of sand, and confident that he would be grateful for her help, took the shovel from him and filled the pail. *His rage was terrible.* He cared not a straw for a pailful of sand. What he wanted was to fill the pail for himself to demonstrate his mastery of the material. Then, *to crown his misery*, his mother, not in the least understanding the cause of his distress, *tenderly examined his clothing to see if some pin was hurting him.* Such were the daily misunderstandings of his life. Sometimes he was spanked because of his temper, not in the least recognising the reason why he should be hurt; but, in spite of all the difficulties in his path of learning, nothing could divert him from his chief purpose of mastering things.

"At the age of seven it occurred to him that it would be a great accomplishment if he could dominate other people as his parents dominated him. The soldier astride a broom charging an imaginary foe was nothing but make-believe. He must have real war, for is this not a world of real things? so he engages Tommy Smith in single combat. He does not in the least dislike Tommy Smith, and *he harbours no resentment* against him as he nurses his bruises and lacerations. He just loves a real battle and to *bend Tommy to his will. He delights in the terror that he can so easily create in his little sister by threatening to strike her.* The agonised *howls of the family cat are sweet music to his ears.* Not the least of his pleasures is to be pursued by his irate mother after he has overturned a chair, slammed a door and yelled defiance at her. There is something flattering in the violence of his mother's anger and the evidence of his ability to produce such vigorous action in a person who has hitherto so completely dominated him. He courted danger. Frequent chastisements only spur him on to new methods of getting even. He now habitually resents any authority on the part of his mother. His impulse is to disobey every command irrespective of

its merits. He becomes morose and sullen while in the home, and spends all the time possible away from his home with other boys of his own age. He loves to feel the *admiration that his companions render him* when he can do something more daring than they. The angry eye and threatening fist of the policeman are still further and more convincing evidence of *his greater importance in the world.* He glories in the fact that his teacher thinks him the most disorderly boy in the school."

The words italicised in this delightful piece of biography indicate some of the multitudinous complexes to be observed even in young children. And on their emotional side they are mostly compounded of either the instinctive love of self or one of its complementary antipoles or opposites [1] and on their conceptual side of a large, varied and ever-increasing number of concepts, as the thought side of the mind gradually develops with the exercise of the increasing powers of perception. When his mother put his fist into his mouth he "*screamed his resentment*" for the indignity so offered. Deprived of the spoon and the power of producing a noise "*he yelled his discontent* and was given another dose of paregoric." He resented any interference even in the form of help. On his mother filling his pail for him "*his rage was terrible*," and his *misery was crowned* by her examining him for a pin prick. After fighting Tommy Smith he harbours no resentment but "*loves to bend Tommy to his will.*" The "*howls of*

[1] The affective or emotional side of the mind as considered in this chapter affords throughout an admirable example of Hegel's doctrine of the synthesis of opposites.

the family cat are music to his ears." The continued pressure of his mother's authority makes him "*morose and sullen while in the home.*" But he loves "*the admiration that his companions render him*" and anything that convinces him "of his *greater importance* in the world." Napoleon, likely enough, passed through just such a childhood.

In a former page in differentiating the concept of the feeling which we call happiness we saw that the ethical quality or value of the different kinds of happiness depended to a great extent upon the various conceptual elements with which in each case the feeling was compounded. And Mr Homer Lane's illustration shows admirably that while the conceptual elements of this great series of complexes are continually expanding with the growth of the conceptual side of the mind the emotional element may nevertheless remain, as we call it, "self-centred,"—most intimately bound up with those elements of the conceptual whole which are closely identified with and minister to the self.

The self-centred nature and tendencies of this instinctive love are finely imaged by Shakespeare, and its expression aptly placed on the lips of one of its very creatures :

> ". . . . the strong base and building of my love
> Is as the very centre of the earth,
> *Drawing all things to it.*"
>
> *Troilus and Cressida*, Act iv. Sc. 2.

When the complexes formed with this instinctive love of self have free play they vent themselves along the line of instinctive actions which become pro-

gressively more volitional, and any thwarting of the actions so prompted immediately converts these complexes into their complementary antipoles, which we call resentment or rage or hate or moroseness or sullenness. The "terror" also which the boy excites in his little sister shows in its complex another antipole of this same instinctive self-love.

In this biographical sketch of Mr Homer Lane's we have an illustration of the *direct* expression of the complexes formed by this instinctive love of self. Here next is an illustration of the *indirect* expression of such complexes given by Dr Bernard Hart of a case mentioned by Dr Jung of Zurich :[1]

> "A man walking with a friend in the neighbourhood of a country village suddenly expressed extreme irritation concerning the church bells, which happened to be pealing at the moment. He maintained that their tone was intrinsically unpleasant, their harmony ugly, and the total effect altogether disagreeable. The friend was astonished, for the bells in question were famous for their singular beauty. He endeavoured, therefore, to elucidate the real cause underlying his companion's attitude. Skilful questioning elicited the further remark that not only were the bells unpleasant but that the clergyman of the church wrote extremely bad poetry. The causal complex was then apparent, for the man whose ears had been offended by the bells also wrote poetry, and in a recent criticism his work had been compared very unfavourably with that of the clergyman. The rivalry-complex thus engendered had expressed itself indirectly by an unjustifiable denunciation of the innocent church bells. The direct expression would, of course, have been abuse of the clergyman himself or his works."

[1] *The Psychology of Insanity*, by Bernard Hart, p. 73.

Or if we desire an example of the collective expression of the complexes and their antipoles formed by this instinctive self-love, no more perfect one will perhaps be found than that presented by contemporary history in the collective mental state of the German people at the beginning of the war.

Here is the expression of their collective self-love and self-admiration as encouraged and developed by their whole state system of education :

> "Germany is so far and above all other nations that all the rest of the earth, be they who they may, should feel themselves well done by when they are allowed to fight with the dogs for the crumbs that fall from her table.
>
> "When Germany the divine is happy, then the rest of the world basks in smiles ; but when Germany suffers, God in person is rent with anguish, and wrathful and avenging He turns all the waters into rivers of blood." [1]

It was quite inevitable that the antipoles or opposites of this self-love and self-admiration should also in due course find collective expression, and vent themselves upon those who provided the determining factor in preventing the ideals from being immediately realised ; and Lissauer's notorious "Hymn of Hate" afforded the means of this expression, and was widely used for this purpose as soon as the importance of the part being played by the British Empire had been fully realised :

> "Take you the folk of the Earth in pay,
> With bars of gold your ramparts lay,
> Bedeck the ocean with bow on bow,
> Ye reckon well, but not well enough now.

[1] From the "Hymn to the German Sword," printed at Leipzig, and confirmed by Principal L. P. Jacks, vide *Hibbert Journal*, April 1916.

French and Russian they matter not,
A blow for a blow, a shot for a shot.
We fight the battle with bronze and steel,
And the time that is coming Peace will seal.
You we will hate with a lasting hate,
We will never forego our hate,
Hate by water and hate by land,
Hate of the head and hate of the hand,
Hate of the hammer and hate of the crown,
Hate of seventy millions choking down.
We love as one, we hate as one,
We have one foe and one alone—
ENGLAND!"[1]

In these three illustrations we have examples of complexes, of which the emotional elements are at such high tension that they express themselves in modes of speech and action which we call "the expression of emotions." But where this *expression* of emotion is not present the emotional element plays a not less important and far more subtle part in determining the selection and grouping of the various conceptual elements which it unites together into a whole, although the emotional element itself may be of so little intensity as to be usually called a "liking" or "desire." Another illustration of Dr Hart's illustrates this admirably:

"Let us suppose that I am an enthusiastic photographer. It is obvious that the existence of this hobby will continually affect the flow of my consciousness. Scenes which would otherwise be indifferent to me will

[1] Everyone is familiar with Lissauer's "Hymn of Hate." It is not extraordinary that one man in a country at war should produce a composition of this kind; but it is extraordinary, as showing the state of mind of the whole country, that the Emperor should have given him the high order of the Red Eagle of the Second Class as a reward for having composed this extraordinary document. *My Four Years in Germany*, by James W. Gerard, p. 222.

> frequently arouse interest as possible material for a picture: if I peruse a newspaper an article upon photography will at once arrest my attention, and when I meet my friends I shall probably seize every opportunity to turn the conversation to my favourite pursuit. We see, in fact, that the hobby is one of the causes determining the direction of my thinking. If we asked such a photographer why he always thought and acted in certain ways he would probably at once reply, 'Because I am interested in photography,' that is to say, he would himself be aware of the existence of the photography-complex and of the way in which it produced its effects."

And were we to accompany the enthusiastic photographer to his home the emotional element of the complex might express itself in his wanting to show us so many examples of his artistic work and skill to examine and comment on that we might regret we had ever accepted his invitation to visit him and look at his work. A little consideration will make it clear that this is only a later and more measured and controlled manifestation of the same emotional element which in the child described by Mr Homer Lane produced the perpetual banging of the spoon on the floor to produce a noise, or the persistent efforts to master the manipulation of the heap of sand.

This illustration of Dr Hart's shows admirably how the emotional element in man's mind plays at once the twofold part, first of largely directing the thought processes and determining the kind and range of the subjects on which they shall be concentrated and exercised, and secondly of providing the means of linking together the thought elements

and binding them into a coherent whole. Concepts may be said to be the bricks of which our cognitive dispositions are gradually built up, and the emotional element is the cement which holds them together in their respective positions. But in contra-distinction to the normal and legitimate function of this emotional element we have already seen under "inference" how this same element may cause an alteration or distortion of the conceptual elements and produce utterly false and irrational groupings in the cognitive dispositions. The emotional element is then playing no legitimate but a disastrous part, and the head becomes the dupe of the heart.

So far, we have been mostly concerned with the complexes formed by that manifestation of an emotional element which we have called the instinctive love of self. La Rochefoucauld, indeed, went so far as to regard what he called self-love as the sole emotional element in man's mind :

> "Self-love is the love of self and of everything for the sake of self. Self-love makes men idolise themselves, and tyrannise over others, when Fortune gives the means. He never rests out of himself ; and settles on external things, just as the bee doth on flowers, to extract what may be serviceable. Nothing is so impetuous as his desires, nothing so secret as his designs, nothing so artful as his conduct. His suppleness is inexpressible, his metamorphoses surpass those of Ovid, and his refinements those of chemistry. We cannot fathom the depth nor penetrate the obscurity of his abyss. From the night that envelops him spring the ridiculous notions he entertains of himself : thence his errors, his ignorance, his gross and silly mistakes with

respect to himself. But this thick darkness, which hides him from himself, hinders him not from seeing perfectly well whatever is without him; in which he resembles the eye, that sees all things except itself. He is composed of contrarieties: imperious and obedient, sincere and hypocritical, merciful and cruel, timid and bold. He has different inclinations, according to the different tempers that possess and devote him sometimes to glory, sometimes to wealth, sometimes to pleasure. These he changes, as age and experience alter: and it is indifferent to him whether he has many inclinations, or only one; because he can split himself into many or collect himself into one, as it is convenient or agreeable to him. He is inconstant; and the changes, besides those that happen from external causes, are numberless which proceed from himself. He is inconstant through levity, through love, through novelty, through satiety, through disgust, through inconstancy itself. He makes himself easy either in the enjoyment or privation of things; he even goes over to those who are at variance with him; he enters into their schemes, and, which is wonderful! along with them hates himself; he conspires his own destruction; he labours to undo himself; he only desires to BE; and, that granted, he consents to be his own enemy. We are not, therefore, to be surprised if he sometimes clothes himself with the most rigid austerity, and enters boldly into a combination wherewith to ruin himself; because what he loses in one place he regains in another. When we think he relinquishes his pleasures, he but suspends or changes them; and even when he is discomfited, and we think we are rid of him, we find him triumphant in his own defeat. Such is self-love! of which man's life is only a long and great agitation. The sea is its image, in the flux and reflux of whose waves self-love may find a lively expression of the turbulent succession of its thoughts and of its eternal motion."

Despite the fine image with which this passage concludes, the opinion of this acute but cynical thinker is doubtless based upon a failure to discriminate between the instinctive love of self and what in later life manifests itself as "rational self-love," of which it is often the precise opposite. And to regard this self-centred manifestation of the emotional ingredient in the dawning mind as the only possible manifestation were surely a shallow view. For down in the depth of the heart of children there is inchoate, unobservable to some, all unknown to the child itself,[1] a love of truth as human beings can see the truth, and also a love of others contingent upon such truth. Here, perhaps, imagination may see the beginning of "the categorical imperative." Here rises the question baffling and ever to baffle physiological research: "Why should a combination of chemical elements strive for right?"[2] And civilised man, no less than the crudest savage, may trample on this tender plant, hinder or prevent its full inflorescence, or crush it altogether with the hoary weight of conventional illusions, which, while seeming to partake of very justice itself, may often possess only the meretricious glamour of a catchword.

The Greeks noted four points in the infinitely subtle transition from the lower to the higher forms of love. These four points they labelled

[1] "The ethical element in man, *i.e.* that which conditions the character of opinions and actions, lies in the deepest night of the Unconscious." *Philosophy of the Unconscious*, by E. von Hartmann, vol. i. p. 265.

[2] "Samarine—A Prophetic Career," by Sir Paul Vinogradoff. *British Review*, Oct. 1915.

respectively *φιλία, ἔρως, φιλαδελφία, ἀγάπη,* and there would seem to be room for further refinement in the same direction, beginning with the initial primary self-love expressing itself along the lines of instinctive acts, and gradually giving place, under the influence of a favourable environment, to the complexes which we group under the labels "self-respect" or "rational self-love"—complexes into which there enters also the love of truth, and a love of others, and whose end is to dominate the love of self which is merely instinctive, where these two striving groups of complexes find themselves in conflict[1] one with the other. And the interactions and conflicts of the two great groups of complexes which may be formed by this emotional element—the two groups varying infinitely in their conceptual ingredients and also in the intensity of their emotional elements—interacting also, not merely by conflict, but often intertwining, co-operating and even gaining strength from a combination so intimate as to defy analysis;[2] these form the perpetual theme of the

[1] In the field of this body a great war is toward
Against Passion, Anger, Pride, and Greed.
It is for the Kingdom of Truth, of Contentment, and of
Purity that this battle is raging:
And the sword that ringeth most loudly is the sword of His Name.
Kabir, *Spirit of Man*, 415.

[2] "Conceive for a moment what an infinitely better and happier world it would be if every action in it were directed by a reasonable desire for the agent's happiness! Excess of all kinds, drunkenness and its attendant ills, would vanish, disease would be enormously mitigated; nine-tenths of the petty vexations which embitter domestic life would be smoothed away; the competition for wealth would be lessened, for wealth would be rated at no more than the quantity of pleasure which it is capable of purchasing for its possessor; the sympathetic emotions would be sedulously cultivated as those least subject to weariness and satiety; while self-sacrifice itself would be practised as the last refinement of a judicious luxury." *The Religion of Humanity*, by A. J. Balfour.

literature of all time. They may be momentary or transient, or may become stabilised, and remain as abiding constituents of what we call "Character."[1] In their momentary or transient form we know them as "emotions," in their stabilised and abiding form as "sentiments," and to the complexity, variety, and multitudinousness of these complexes let the literature of all ages and all peoples bear witness.

In Shakespeare's portrait gallery we may see infinite varieties of these two great groups of complexes. Let us take first a scene where one of the groups is dominant in each of two diverse characters, and see the complexes formed by Lear's instinctive self-love changing into what we call hate when they are ruffled by Cordelia :

LEAR, Act I, Scene 1.

LEAR. Tell me, my daughters,

. . . . . .

Which of you shall we say doth love us most ?
That we our largest bounty may extend
Where nature doth with merit challenge.

After hearing the protestations of Goneril and Regan, and bestowing on each of them a third of his kingdom, he turns to Cordelia :

[1] For many admirable illustrations of this culled from a wide survey of literature, see *The Foundations of Character*, by Mr A. Shand. The view expressed above of the conceptual and emotional complexes seems to the writer not easily reconcilable with Dr McDougall's and Mr Shand's classifications of the emotions and sentiments, but he gladly avails himself of this opportunity of expressing his indebtedness to and profit from their work.

Now, our joy,
Although the last not least ; . . . .
. . . . what can you say to draw
A third more opulent than your sisters ? Speak.

CORD. Nothing, my lord.

LEAR. Nothing !

CORD. Nothing.

LEAR. Nothing will come of nothing : speak again.

CORD. Unhappy as I am, I cannot heave
My heart into my mouth, I love your majesty
According to my bond ; nor more nor less.

LEAR. How, how, Cordelia ! mend your speech a little,
Lest it may mar your fortunes.

CORD. Good my lord,
You have begot me, bred me, loved me : I
Return those duties back as are right fit,
Obey you, love you, and most honour you.
Why have my sisters husbands if they say
They love you all ? Haply, when I am wed,
That lord whose hand must take my plight shall carry
Half my love with him, half my care and duty ;
Sure, I shall never marry like my sisters,
To love my father all.

LEAR. But goes thy heart with this ?

CORD. Ay, good my lord.

LEAR. So young, and so untender ?[1]

CORD. So young, my lord, and true.

LEAR. Let it be so ; thy truth, then, be thy dower :
For by the sacred radiance of the sun,
The mysteries of Hecate, and the night ;

[1] An excellent example of what the psycho-neurologists call "Projection":

> "And they, sweet soul, that most impute a fault
> Are pronest to it and impute themselves,
> Wanting the mental range ; or low desire
> Not to feel lowest makes them level all ;
> Yea, they would pare the mountain to the plain,
> To leave an equal baseness."
>
> Tennyson, *Merlin and Vivien*.

By all the operation of the orbs
From whom we do exist, and cease to be ;
Here I disclaim all my paternal care,
Propinquity and property of blood,
And as a stranger to my heart and me
Hold thee, from this, for ever. The barbarous Scythian,
Or he that makes his generation messes
To gorge his appetite, shall to my bosom
Be as well neighbour'd, pitied, and relieved,
As thou my sometime daughter.

KENT. Good my liege.

LEAR. Peace, Kent !
Come not between the dragon and his wrath.
I loved her most, and thought to set my rest
On her kind nursery. Hence, and avoid my sight !
So be my grave my peace, as here I give
Her father's heart from her !

. . . . . .

LEAR. Right noble Burgundy,
When she was dear to us, we did hold her so ;
But now her price is fall'n. Sir, there she stands :
If ought within that little seeming substance,
Or all of it, with our displeasure pieced,
And nothing more, may fitly like your grace,
She's there, and she is yours.

BURG. I know no answer.

LEAR. Will you, with those infirmities she owes,
Unfriended, new-adopted to our hate,
Dower'd with our curse, and stranger'd with our oath,
Take her, or leave her ?

BURG. Pardon me, royal sir :
Election makes not up on such conditions.

LEAR. Then leave her, sir ; for, by the power that made me,

I tell you all her wealth. (*To France.*) For you, great king,
I would not from your love make such a stray,
To match you where I hate; therefore beseech you
To avert your liking a more worthier way
Than on a wretch whom nature is ashamed
Almost to acknowledge hers.

. . . . . .

LEAR. Better thou
Hadst not been born than not to have pleased me better.

. . . . . .

LEAR. Thou hast her, France: let her be thine; for we
Have no such daughter, nor shall ever see
That face of hers again. Therefore be gone
Without our grace, our love, our benison.

Here we see how Lear himself was dominated by complexes of the instinctive love of self, and Cordelia by those of a more ethical manifestation of the emotional element. Now let us see, as Shakespeare has drawn them, these two great groups of complexes striving for the mastery in a single mind. In the short space of one scene, we can see in Macbeth the opposing complexes marshalled, the conflict joined, the victory won, and the die cast for the succeeding portions of the tragedy, and all this with the full consciousness of the man in whose nature the conflict is taking place, and if not a complete at least a large measure of realisation of the moral issues at stake, and the tissues of falsehood which will be afterwards necessitated as a consequence.

MACBETH, Act I, Scene vii.

Mac. If it were done when 'tis done, then 'twere well
It were done quickly : if the assassination
Could trammel up the consequence, and catch
With his surcease success ; that but this blow
Might be the be-all and the end-all here,
But here, upon this bank and shoal of time,
We'd jump the life to come. But in these cases
We still have judgment here ; that we but teach
Bloody instructions, which, being taught, return
To plague the inventor : this even-handed justice
Commends the ingredients of our poison'd chalice
To our own lips. He's here in double trust ;
First, as I am his kinsman and his subject,
Strong both against the deed : then, as his host,
Who should against his murderer shut the door,
Not bear the knife myself. Besides, this Duncan
Hath borne his faculties so meek, hath been
So clear in his great office, that his virtues
Will plead like angels, trumpet-tongued, against
The deep damnation of his taking-off ;
And pity, like a naked new-born babe,
Striding the blast, or heaven's cherubim, horsed
Upon the sightless couriers of the air,
Shall blow the horrid deed in every eye,
That tears shall drown the wind.

And to set against all these considerations

I have no spur
To prick the sides of my intent, but only
Vaulting ambition, which o'erleaps itself
And falls on the other.

Enter LADY MACBETH.

We will proceed no further in this business :
He hath honoured me of late ; and I have bought
Golden opinions from all sorts of people,
Which would be worn now in their newest gloss,
Not cast aside so soon.

LADY M. Was the hope drunk
Wherein you dress'd yourself ? hath it slept since ?
And wakes it now, to look so green and pale
At what it did so freely ? From this time
Such I account thy love. Art thou afeard
To be the same in thine own act and valour
As thou art in desire ? Wouldst thou have that
Which thou esteem'st the ornament of life,
And live a coward in thine own esteem,
Letting "I dare not" wait upon "I would,"
Like the poor cat i' the adage ?

MAC. Prithee, peace :
I dare do all that may become a man ;
Who dares do more is none.

LADY M. What beast was't, then,
That made you break this enterprise to me ?
When you durst do it, then you were a man ;
And, to be more than what you were, you would
Be so much more the man. Nor time nor place
Did then adhere, and yet you would make both :
They have made themselves, and that their fitness now
Does unmake you.

. . . . . .

MAC. If we should fail ?

LADY M. We fail !
But screw your courage to the sticking-place

And we'll not fail. When Duncan is asleep—
Whereto the rather shall his day's hard journey
Soundly invite him—his two chamberlains
Will I with wine and wassail so convince
That memory, the warder of the brain,
Shall be a fume, and the receipt of reason
A limbeck only : when in swinish sleep
Their drenched natures lie as in a death,
What cannot you and I perform upon
The unguarded Duncan ? what not put upon
His spongy officers, who shall bear the guilt
Of our great quell ?

MAC. Bring forth men-children only ;
For thy undaunted mettle should compose
Nothing but males. Will it not be received,
When we have mark'd with blood those sleepy two
Of his own chamber and used their very daggers,
That they have done't ?

LADY M. Who dares receive it other,
As we shall make our griefs and clamour roar
Upon his death ?

MAC. I am settled, and bend up
Each corporal agent to this terrible feat.
Away, and mock the time with fairest show :
False face must hide what the false heart doth know.

Times, circumstances and methods are perpetually changing, but history in many ways repeats itself, because, through the long procession of the ages, humanity remains essentially the same. Who shall say that some such conflict as that which the great artist of humanity depicted in *Macbeth* did not take place in the mind of ex-Kaiser Wilhelm, ere he precipitated the train of actions by which

he dedicated himself to all future times as a modern Attila or Timur ? The moral impulses which arise in the mass of a people may, as in an individual, be stifled and coerced by an astute combination of lack of truth and ordered force, but these impulses will re-assert themselves as the clouds of untruth are riven and the collective mind becomes purified by the realisation of tragic facts. And if it be true, as Bacon said, that " The man who aims at being the only figure among ciphers is the ruin of an age," it is also true that in thus ruining his age he often effects his own ruin too. It was so with Napoleon in the yesterday of history, it has been so again to-day. " Is not this," said Nebuchadnezzar, " great Babylon which *I* have built by the might of *my* power and for the honour of *my* majesty ? " Nietzsche's super-man is merely a new name for an old nuisance ; and Kaiserism was only Nebuchadnezzarism modernised.

It would seem, then, that the two diverse manifestations of this fundamental emotional element in man's mind, differing so profoundly according to the conceptual elements with which consciously or unconsciously it may be so variously compounded, form perhaps separately, perhaps in combination, the greater part of what we call " interest." To enlist and utilise them for the best where they are present, to evoke and utilise them in harmony where one or other is seemingly absent lies at the very base and constitutes the central and eternal problem of all educational technique. It is the business of education to enlist the primary instinctive love of self in the development of a good physique, in

the spontaneous stretching out of the intellectual side of the mind and its faltering efforts towards Truth, and lastly to lead the individual up over the rungs of the ladder of the higher love complexes to the highest possible point, giving expression to them all the while in appropriate actions as development goes on. Thus may man by degrees be raised with the ever-widening emotional content of the mind, reaching up at last to the highest and widest, to love complexes embracing God and Truth and Beauty[1] and all Humanity, complexes which, being on both conceptual and emotional sides universal, become also thereby ethical.

Thus it is

> "That men may rise on stepping stones
> Of their dead selves to higher things."
>
> (Tennyson.)

> "That so Man's mind, not conquered by his clay,
> May sit above his fate,
> Inhabiting the purpose of the stars,
> And trade with his Eternity."
>
> (Lascelles Abercrombie.)

1 "What the imagination seizes as Beauty must be Truth." Keats.

"I have as much reason to think the Universal Agent, or God, speaks to our eyes as you have for thinking any particular person speaks to your ears." Euphranon arguing in Berkeley's *Alciphron.*

"God must not be treated as an entity which we may add to or subtract from the sum of things scientifically known as the canons of induction may suggest. He is himself the condition of all scientific knowledge. If he be excluded from the causal series which produces beliefs, the cognitive series which justifies them is corrupted in its root. And as it is only in a theistic setting that beauty can retain its deepest meaning, and love its brightest lustre, so these great truths of æsthetics and ethics are but half truths isolated and imperfect, unless we add to them yet a third. We must hold that reason and the works of reason have their source in God: that from Him they draw their inspiration, and that if they repudiate their origin by this very fact they proclaim their own insufficiency." Concluding words of *Theism and Humanism*, by A. J. Balfour.

Lines written at Capel Curig, April, 1918 :—

"We come again in direful time of war,
For respite from the all-engaging toil.
The hills are placid and the streams roll on :
The old grey clouds which love the hills so well
Wrap them about to fold them from our sight,
They shade the sun to keep his glory close,
And feather down upon the lakes and woods.
'These beauties we would hide,' they seem to say,
'Till men unto their better selves return :
'Until they make the Right beat down mere Force,
'And set fair Justice on a surer throne,
'It is our Duty and our Grace to veil
'*The earthly glories of the spirit world.*'"

CHAPTER VII

WILL OR CONATION, SPIRIT

KANT started with the doctrine that the only unconditionally good thing in the universe is the good will; but what is will? and how does it become either good or bad?

Will may perhaps be defined as *desire and thought united in action or inhibition*,[1] and in the same individual it may show itself at one moment in action at another moment by inhibition.

We saw in a previous page, in differentiating the concept of the feeling which we call happiness, that there was a happiness of instinct, a happiness of intellect and a happiness of spirit: so it is also with the *desire* which is the animating force of what we call "will." It may be a desire of mere natural or

[1] "Will can be identified with neither *reason* nor *desire*, nor is it a third thing co-ordinate with both (Plato) nor a fusion of the two (Aristotle), yet it includes both. It includes:

"(*a*) The instinctive craving for a good, an ideal to be realised—in Aristotelian language, *βούλησις*, which though a part of *ὄρεξις*, is already, as being *βούλησις ἀγαθου, λογιστικόν τι*.

"(*b*) A representation to ourselves of some good to be realised (*φαντασία*).

"(*c*) The rational deliberation as to how it shall be realised (*βούλευσις*).

"(*d*) The identification of self with the best means for the end. (*προαίρεσις*)."

Some Questions about the Will, from *Essays Scientific and Philosophical*, by Aubrey L. Moore, p. 137.

"The Science of Character will deal with the intellect as with the Will. It will regard the one no more than the other as an independent existence, but as organised in and subserving the system of some impulse, emotion, or sentiment." *The Foundations of Character*, by A. F. Shand, p. 67.

animal instinct, or a desire of intellect, or a desire of spirit, and according to the nature and force of this animating desire so, *ceteris paribus*, will be the nature and extent of the results effected by it, when by combination with the necessary thought and action or inhibition it eventuates in what we call "Will." And the "will" of which this desire constitutes a part may be the "will" of an Ivan the Terrible, a Borgia, a Napoleon, a Shakespeare, a Dante, a Newton, a Darwin, an Alfred, a Gladstone, a Francis d'Assisi, a Vincent de Paul.

Take as an example—Napoleon,[1] whose dominant desire was the personal ambition first of creating an empire for himself out of the chaos following the revolution, and secondly of founding a dynasty of his own to rule this empire in succeeding times. If we analyse what we ordinarily call the "judgment" which he showed in such a matter as the choice of his officers and ministers, this may be said to have consisted of a highly developed faculty of rapidly "acquiring" a knowledge of men, of "differentiating" accurately between their individual aptitudes and capacities, of successfully "correlating" their capacities with the requirements of the various positions in which he placed them; and all these conceptions and actions, when regarded as a whole, constitute a process of "integration," by which he formed an entity, an integral whole, his complete executive to aid him

[1] "We think of Napoleon Bonaparte as a colossal monster of will-power, and truly enough he was so. But from the point of view of the psychological machinery it would be hard to say whether he or Gladstone was the larger volitional quantity; for Napoleon disregarded all the usual inhibitions, and Gladstone, passionate as he was, scrupulously considered them in his statesmanship." Wm. James, *Talks to Teachers*, p. 181.

in carrying out his desire. But however brilliant his genius in the wide and complex sphere of action in which he moved and worked it is difficult to see that the desire of self-assertive domination[1] which animated his whole career differed essentially from that of the primitive savage in Kipling's verses (v. *ante*, p. 21). He was the creature of his instincts as surely as is the miser, the sensualist or the thief, and his great powers of mind were employed primarily and unceasingly in gratifying them ; whereas in Alfred the Great or Gladstone, for example, the power of inhibiting the natural instincts had been so cultivated that altruism and high motive took the place of egotistic desire and purely selfish action. The one is an example of the non-moral genius of action in whom the intellect is directed by the desire of gratifying the natural instincts. The others are examples of the moral genius of action in whom the intellect is directed by a desire of an immeasurably different order, by something which has been called and which we may still call "spirit."[2]

[1] "The finite self aims at dominion : it sees the world in concentric circles round the *here* and *now*, and itself as the God of that wished-for heaven." "The Essence of Religion," by the Hon. Bertrand Russell, *Hibbert Journal*, Oct. 1912.

[2] "What we find to be possible is the subservience of natural desires to a nobler set of thoughts and aims, till they are not destroyed, but caught and lifted up into a higher atmosphere, where for the first time their meaning becomes plain." *The Corner-Stone of Education*, by Ed. Lyttelton, p. 139.

"Morality *is* self-assertion : it is infinite self-assertion. But it is self-assertion on the basis of a self-negative which knows no limits. It is a dangerous experiment to lay the world at the feet of the natural man : it is safe at the feet of the spiritual." "Why we are Fighting," by Sir Henry Jones, *Hibbert Journal*, Oct. 1914.

Spirit [1]

What then is spirit? Who shall say? "From generation to generation men have been the sport of words," and the word is only a name-label which men attach to profoundly different concepts or images. We talk of good spirits, of evil spirits, of animal spirits, of ghostly spirits, of rectified spirits, of spirits of salts, of spirits of wine, of the spirit of the law, of the spirit of the age, of the spirit of the constitution, of the spirit of mischief, of the spirit of truth, of the spirit of love, of the spirit of life. But what meaning are we to attach to the label when we use it to indicate that part of man's nature which we call spiritual? Are we right in speaking of a man's "Spirit" as something different from what we call his "Mind"? or are they terms which we may use synonymously? and if not, what relationship do they bear the one to the other? We know that what we call man's "Body" is a complex of many parts and functions, we have seen that what we call man's "Mind" is a complex of a few mental processes working with percepts and concepts; we have seen that what we call "Imagination," and what we call "Reason," are not special "faculties," but only complex groupings of percepts and concepts into mental images and forms: that what are

[1] "And now the 'triumph of man over nature,' the commercialising of human life and thought, has done its utmost—and it has failed. The industrial renaissance of humanity in the nineteenth century has ended in the smoke of howitzer shells. Man in becoming master over nature has neglected the greater task of becoming master of himself and his highest concerns. In the rediscovery of the supreme importance of these lies the next stage of his development. The war has put a period to his attempt to raise himself by the forces of nature: it reveals the need to raise himself by the forces of spiritual life." "The Apocalypse of War," *Hibbert Journal*, April 1916.

usually called "Emotions" are intimately blended complexes of both conceptual and emotional elements, and that what we call man's "Will" is also a complex of which the functions and content of mind form a part. So too with what we call man's "Spirit." It also is likely to share this complex nature,[1] and may perhaps be regarded as an intimately blended complex of truth with universal and ethical as distinguished from instinctive[2] love. But since human knowledge is merely conceptual and relative and never attains to absolute truth, and human love is mostly instinctive and never becomes consistently universal and ethical, it follows that the complex of these two elements in man must participate in these limitations and will ever remain but a dim reflex of the transcendent and absolute Truth and Love which mankind has for ages embraced among the attributes which it has enshrined under the ancient name of God. It is only when men's impulses, thoughts and actions[3] are controlled and directed by such a complex that man comes nearest to the godlike. And the control and direction of life by such a complex, to which we may attach the name of "spirit," becomes at once a high and perpetual warfare, a warfare of the higher self with the lower self, of the universal self with the particular self,

[1] "The spiritual life is not a product of a single psychical function, such as thought or feeling; it would form a whole transcending the psychical functions, and from this whole determine the form of each function distinctly." *Life's Basis and Life's Ideal*, by Rudolph Eucken, p. 135.

[2] *Vide* Note, p. 153.

[3] "Morality must take up a definite attitude towards the sense nature of man; that nature must be subordinated to the aims of the spirit." *Life's Basis and Life's Ideal*, by Rudolph Eucken, p. 341.

of spirit in man[1] with instinct in man ; a warfare in which the interests of the higher self become ultimately merged with the interests of others, in which the highest individualism becomes to a large extent social service. And action directed by the rare combination of complete knowledge and love, which is at once both universal and ethical, is justice.

With this conception in our minds of the complex nature of what we call man's "spirit" may we not rebreathe with a new fervour the petition of the old prayer, "Cleanse the thoughts of our hearts by the inspiration of Thy Holy Spirit"?

God thought—'I will infuse my LIFE
'Into this barren clay.'
So the clay lived, and thus the fight began
'Twixt Spirit and Matter in the Mind of Man.
And after æons of creative strife,
And struggle to the goal of consciousness,
Man's Matter said, 'I see the world around,
'I hear the music in the strings of Time,
'I gather in the lore of all the Past,
'I have the apprehension of a God.'
But Spirit echoed back, 'Illusions these,
'Illusions of thy little cell-bound mind,
'Illusions which thou needs must now unlearn.
'For high above the sights thou seest here,
'Behind the ages as they onward roll,
'Beyond the Future veiled from human scan,
'Transcendent TRUTH and LOVE for ever reign
'In mystic union with immortal LIFE,
'Triumphant still, curbing the reach of Time.
'These indeed ARE, all else but SEEMS TO BE.'

[1] "Man is a spiritual being, and the proper work of his mind is to interpret the world according to his highest nature, and to conquer the material aspects of the world so as to bring them into subjection to the spirit." Preface to *The Spirit of Man*, The Poet Laureate.

CHAPTER VIII

IMPULSES

IMPULSES are instinctive and emotional intimately blended.

INSTINCT.

Definitions.

"Instinct is purposive action without consciousness of the purpose."—E. von Hartmann.[1]

"Instinct is conscious willing of the means to an unconsciously willed end."—E. von Hartmann.[2]

"The faculty of acting in such a way as to produce certain ends, without foresight of the ends, and without previous education in the performance."—Wm. James.[3]

"Those complex groups of co-ordinated acts which, though they contribute to experience, are on their first occurrence not determined by individual experience; which are adaptive and tend to the well-being of the individual and the preservation of the race; which are due to the co-operation of external and internal stimuli; which are similarly performed by all members of the same more or less restricted group of animals; but which are subject to variation and to subsequent modification under the guidance of 'individual experience.'"—C. Lloyd Morgan.[4]

[1] *Philosophy of the Unconscious.* Translation by Wm. C. Coupland. vol. i. p. 79.
[2] *Ibid.*, vol. i. p. 88.
[3] *Principles of Psychology*, vol. ii. chap. xxiv.
[4] C. Lloyd Morgan, *Encycl. Britann.*

"An inherited reaction of the sensori-motor type, relatively complex and markedly adaptive in character, and common to a group of individuals."—Baldwin.[1]

"An inherited psycho-physical disposition which determines its possessor to perceive, and pay attention to, objects of a certain class, to experience an emotional excitement of a peculiar quality upon perceiving such an object, and to act in regard to it in a particular manner, or, at least, to experience an impulse to such action."—McDougall.[2]

"An inherited disposition both to be excited by certain stimuli and to respond with a specific kind of behaviour or expression to such stimuli."—A. F. Shand.[3]

"As a factor determining the behaviour of living organisms, Instinct, physiologically regarded, is a congenital predisposition of the nervous system, consisting in a definite, but within limits modifiable, arrangement and co-ordination of nervous connections, so that a particular stimulus, with or without the presence of certain co-operating stimuli, will call forth a particular action or series of actions; this predisposition, biologically regarded, is apparently due to the operation of natural selection, and determines a mode of behaviour which secures a biologically useful end, without foresight of that end or experience in attaining it."—Drever.[4]

"Now we are proposing to call the conscious impulse 'Instinct' when and so far as it is not itself determined by experience, but only determined in experience, while itself determining experience, in conjunction with the nature of objects or situations determining experience as sensation. This is what instinct seems to be psychologically. Instinct is the 'life impulse' becoming conscious as determinate

[1] *Baldwin's Dictionary of Philosophy and Psychology.*
[2] *Social Psychology*, sect. 1. chap. xi.
[3] *The Foundations of Character*, p. 182.
[4] *Instinct in Man*, p. 81.

conscious impulse. But this, in itself, is only one side of the psychological fact and an abstraction. The other side — also an abstraction — is sensation. The psychological fact itself is experience in its lowest terms."—Drever.[1]

Marshall in *Instinct and Reason* uses the word in a wider sense, distinguishing throughout between Instinct-action and Instinct-feeling, and including also the so-called moral and religious instincts.

Here we have definitions of the term "Instinct" from the metaphysical, psychological and biological points of view, and with these before us we need hardly be surprised at Prof. Lloyd Morgan's remark that "as things now are, no two writers use the term in quite the same sense."[2]

With this in mind it will perhaps be best for the present to regard the term as an example of what anthropologists in their studies and descriptions of primitive man term "holophrases," and a "holophrase" is merely the verbal sound or form with which civilised no less than primitive man endeavours, on the one hand to give expression to his inchoate and quite imperfect knowledge, and on the other hand to camouflage as far as possible his very real ignorance. An amusing example of a "holophrase" was once given to the writer by a medical man who had spent some time in one of the Pacific Islands. It was an island to which western civilisation had only recently penetrated, an island where the memory of some

[1] *Instinct in Man*, p. 89.
[2] *Instinct and Experience*, p. 239.

of the older inhabitants went back easily to the good old days of cannibalism, and where before the advent of western ideas and habits the animals which we call cattle were unknown. When cattle were introduced the islanders were of course much impressed by the arrival and dignity of these strange beasts. They heard the individual animals called now by the name of bull, now by the name of cow, and being at first inappreciative of the difference between them they invented a holophrase to embrace them all, and they became known individually and collectively, both then and afterwards, as "bull-a-ma-cow."

Now the term "Instinct" in its varied and various applications seems to partake in some degree of this nature of a holophrase: it seeks to express something of which our formulated knowledge is quite imperfect, and to camouflage with as much dignity as possible our real ignorance of the nature and relations of the several elements or factors which go to make up the whole. The task lies ahead of us to analyse it and formulate more precisely and with greater discrimination the nature of its ingredients and their proportions. Mankind suffers many of its lapses and retrogressions in the slow upward struggle after what we call "progress" by continually allowing itself to be deflected from the paths pointed out by its greatest minds, and an outline of the past, as broadly sketched by some of the greatest, shows us that in the age-long process of epigenesis by which man has arisen the cosmopoietic energy has in some manner unknown to us become endowed with life,

has become the *élan vital*[1] of Bergson. In the realm of what we call the vegetable world this impulse shows itself in the ever recurring cyclical processes of generation, growth and decay in the myriad forms of plant life. In a higher form and by means of a different organisation it shows itself again in what we call the zoological world; and working by means of innate and co-ordinated neuro-muscular mechanisms, it emerges in what we call instincts. Higher still, and we find superadded to the mechanisms of the instincts a more elaborate neural mechanism—the mechanism of reflective thought, and the same vital impulse, working through and by means of this mechanism of reflective thought, emerges in man's dim approximations to Truth.

Now, to use the term instinct, as is done so often, to denote indiscriminately (1) the *élan vital* itself, (2) the *élan vital* working by means of some of the innate neuro-muscular mechanisms and emerging as the instincts, and (3) the *élan vital* working by means of the higher neural mechanism and emerging as reflective thought, would seem to be as serene a display of logical vacuity as it would be to denote by one and the same term, (1) the energy flowing down a street in the electric main, (2) this same energy working through one set of mechanisms in one factory and producing wooden boxes, and (3) this same energy working through another set

[1] "You may call it what you please, but it is always the same. You may call it *Entelechy*, you may call it the Harmony of the World; you may call it the *Elan Vital*, you may call it the Breath of Life, or you may call it, as it is called in the story-book of Creation, and in the hearts of men,—you may call it the Spirit of God." D'Arcy W. Thompson, *Life and Finite Individuality*, p. 54.

of mechanisms in another factory and producing clothes. Such usage has the effect of converting what might be a useful term into a holophrase.

Or the usage of this term instinct may be regarded from another point of view. There lives in parts of Asia ranging from Hindustan to China and from Burmah to the great islands a strange and fascinating creature known to zoologists as *Nycticebus*. This creature is a small, tailless lemur, and is of especial interest in that it presents a stage of development just prior to that at which stereoscopic vision comes into being. *Nycticebus* possesses the conjugate movement of the two eyeballs which is necessary for this function, but does not possess the sensitive spot on the retina or the "macula" which is found in those animals in which stereoscopic vision exists. The creature is held, therefore, not to possess the power of blending the slightly differing images produced by the two eyes into a single mental image,—a process which is of the essence of what we call stereoscopic vision. Man in his study of "Instinct" seems to be in a somewhat similar stage of development. He can see it from the metaphysical, from the biological and from the psychological points of view, but has not yet learnt to embrace all these in a single coherent whole. His philosophy on this point is too monocular.

The usage of the term is, of course, merely a question of words and, like all questions of words, a question of delimitation of use in accordance with an enlightened general convenience, and this convenience may well be left to settle the question for itself, in the course of the next generation or

the generation next but one. In the meantime and for the immediate purpose in hand—the education of man — it seems inconvenient to use the same term to denote those impulses which man has in common with insects and the lower animals, and those higher "intuitions" which Kant conceptualises as "the categorical imperative," Butler as "conscience," and others as "the inner check"[1] or "the moral sense." The writer accordingly uses the term "Instinct" in a more restricted sense than Marshall, a sense which includes an affective or emotional as well as a motor content, but an emotion centring in the individual and extending, at any rate for a time, as in the higher animals, to other members of the family. In view of Long's observations, which are referred to subsequently, it seems to the writer open to question how much of the communal behaviour of gregarious animals is due to instinct and how much to education.

Instincts involve and imply certain innate arrangements of nerve cells in functional relation with one another and adequate when working in combination to provide the neural mechanism necessary for the instinctive act. These groups of functionally related cells form the anatomical and physiological correlates of what are known psychologically as "dispositions." The instincts in man may be regarded as due to congenital dispositions in the lower functional levels of the cerebro-spinal nervous system.

Let us see something of the instinctive and

[1] P. E. More in *The Drift of Romanticism.*

imitative impulses at work in a child four years of age:[1]

"At 10.40 my four-year-old came to me and said, 'Shall we dig?' I assented, and we went forth. Prepared to abandon initiative and remain as neutral as possible, I had no sooner been armed with a trowel than he rushed off to a corner of the garden. 'Look at those pretty flowers' was his cry as he pointed to a sage-bush. As he returned he pointed out some short sticks forming 'a little fence,' then 'a pansy,' and mentioned casually that the pea-sticks did not poke into his eye as he passed (a reference to an accident of three weeks ago). Digging then commenced, the earth being loaded into the toy cart, while I gave a minimum of help. Soon he shouted with a discoverer's glee, 'fir-cone,' picked up the cone, and apparently being reminded of 'comb,' tried to part his hair with it, and then threw it into his 'house' (a large wooden packing-case, stood on one end), saying, 'We'll keep that.' By 10.58 he had filled and tipped the cart twice.

"He now took a deep pan and a small garden fork, and in answer to inquiry, said, 'I am going to make pepper, salt and mustard, and this is my mixing fork.' In order to avoid any jarring note, I also began the manufacture of pepper, etc., but was reminded that I must not attempt it until I had done cart-loading. Hastily I filled and tipped the cart once, and was hurrying on with the pepper, etc., when the boy, whose attention was, I thought, fully occupied with his task, remarked that two loads ought to be tipped first.

"By 11.11, 'pepper, salt and mustard' had been metamorphosed into 'dinner,' and this was soon considered as cooked, but suddenly he started to get 'potatoes,' picking up rounded stones and placing them in the cart. The intermittent nature of this work, and the different objects which he noticed as he

[1] "Two Hours' Play of a Four-Years-Old Boy," by J. J. Webber, B.A., *Child-Study*, Oct. 1913.

searched the ground, set his tongue going. He had been forbidden some days before to break off the small twigs on the pea-sticks, but as he was busily occupied I unconsciously snapped off a twig. He immediately glanced up from his 'potato' gathering and said, 'Why do you break off those twigs?'

"He chattered about the cool breeze, and the leaves on the tree; noticed a piece of glass, which he threw away, and a shell, which he picked up and exhibited before placing in the 'house,' then having gathered 43 'potatoes' he became a buyer, and negotiated with an imaginary greengrocer. The 'potatoes' were placed in a box in imitation of the household custom, and then it appeared that we kept 'birds in cages,' and this food was for the 'dickies.' I may mention that vegetables chopped small, in water, was his idea of birds' food; and a cupful of this 'soup' placed in a disused bird-cage, which is hung outside the house, is his method of 'trying to catch birds.'

"At 11.22 more potatoes were collected, and having noticed me counting the previous number, he invited me to count again. A pudding was now to be made, but the unsatisfactory nature of pebbles seemed to strike him, as they rattled into his small pail, and he threw them all out and began to pick up lumps of earth. In a moment he brought me a small brown withered bulb and said, 'Look—a buttercup root!' It was sure enough *Ranunculus acris*, but before I had time to inquire about this alarming botanical erudition he ran into the house to show the find to his mother. He planted them, it seems, and the flowers and leaves disappeared some weeks ago.

"Continuing his search for 'potatoes' he found little pears and placed them to cook on the 'dinner.' 'There's a honey-bee,' he says, as it flies past, and then enters into an explanation, with practical illustrations, of why as a rule he comes in from the garden with dirty knees.

"The lumps of earth are placed on the bottom of a box, and he goes to get an old knife 'to cut up seeds for the dicky.' 11.40 : The material being cut up is soon called 'parsley,' and then 'suet'—the latter being sprinkled on the overdone 'dinner,' while the unused lumps of earth are put into the pail, which is carefully hung up in the 'house.'

"His attention was now roving. Catching sight of his mother, he asked for an apple or an orange, but hardly waiting for an answer, assured me that tail-boards of carts had to be made 'strong,' that somebody had to make 'Tommy' (his wooden horse), and that Tommy had to eat his food 'like this'—falling on his hands and knees and champing. The shell in the 'house' now attracted his eye—'Could we find one without a hole in it?'

"At 11.45 he said, 'Shall we dig now?' and emptied the 'dinner' on to the ground, but he made no attempt to dig, and soon suggested that we should 'live in the little house and eat potatoes.' The pail containing the latter was upset, as he was admiring a lady-bird in the 'house' at 11.51, so he set to work with the knife, flattening the small heap of spilt earth, and calling it 'cement.'

"Looking at some nails he recalled the pictures tacked up in his 'house' a couple of months ago, and then invited me to play, the game to be 'going down the path with the horse and cart, as our mother allows us to do this.' At 12.8, after a turn at the aforesaid game, he talked of digging, but hearing the voice of the little boy in the next garden he did nothing. At 12.10 he asked for his wooden engine, on which he sat and shouted to the little boy. He filled the engine tender with earth at 12.14, but stopped to watch and talk to the other boy till 12.30, when he again suggested digging, but did nothing.

"A shower then came on, and he covered the horse and cart with sacking, but stood the pail containing

some earth out in the rain 'to make mud,' and when the rain stopped, made an unsuccessful appeal for tap-water. 12.34: We walked the path again with Tommy and the engine, but this was soon abandoned, and at 12.45 he began picking leaves and passing them through the chinks of his 'house' from the inside to the outside. While doing this he says gravely, without turning his head, 'Skylark,' and then I noticed one singing in the distance."

This excellent piece of "experiential reconstruction" shows the play and imitative impulses at work in various directions—"digging," making a "house," preparing "dinner," cooking "potatoes," negotiating with a greengrocer, "trying to catch birds," imitating "Tommy" eating—making "suet," "mud," etc. It also shows the child applying to the work in hand the conceptual contents of his mind as these have been formed by his previous experience. The impulse to action and speech must vent itself in the terms already stored and ready to hand in the cognitive dispositions of his mind, however inappropriate they may be, and further we see throughout how the trains of speech and action are being continually interrupted and diverted by streams of new percepts which his mind is unceasingly acquiring from the sense-data furnished through his eyes, his ears and his touch. The dynamic stream of percepts is constantly at work adding to his experience and recalling to the consciousness of the moment concepts previously formed and stored in the mind. The boy is reacting to his environment in response to this perceptual flow, and the mingling and interaction of inner impulse and outer impression is forming

new experience, and this in its turn is creating new desires which are immediately craving for satisfaction and expression. But the talk and action throughout are seemingly chaotic and purposeless, and it is the business of education to reduce this chaos to order, to develop gradually *in the child* the power to control and direct these and similar impulses, and ultimately the power, if necessary, to inhibit them altogether.[1] And this is of the very essence of discipline[2]—self-discipline it may be and in later life must be,[3] but none the less discipline for that—self-expression it must be too, but a self-expression which involves self-transcendence, the transcendence of a higher and more ordered self over the lower self of instinct. This power of

[1] ". . . the modern authorities in physiology and psychology now believe that there are in the brain masses of cells whose duty it is to inhibit or control the action of other parts of the brain. The question is a most important one in Mental Hygiene. Can those inhibitory centres be so developed in youth and so cultivated in mature life that they can act as antagonists to what is morbid? Can they in fact be used as directly curative agencies against tendencies towards foolish and hurtful impulses? *If this is so, and we could cultivate this power, it would be an educational discovery the most valuable yet made by humanity.*" *Hygiene of Mind*, by Sir Thomas Clouston, p. 81.

"The peculiar problem of the early grades is, of course, to get hold of the child's natural impulses and instincts, and to utilise them so that the child is carried on to a higher plane of perception and judgment, and equipped with more efficient habits: so that he has an enlarged and deepened consciousness, and increased control of powers of action. Whenever this result is not reached play results in mere amusement and not in educative growth." *The School and the Child*, by John Dewey, p. 58.

[2] Surely the very zenith of creative definition was attained by Professor T. P. Nunn, when he defined discipline as "the art of securing that the energies of the educand shall marry freely with the best ideas" (*Report of Conference on New Ideals in Education*, Stratford, p. 148), a definition which embraces both the older and newer methods of effecting the marriage ceremony: the older by condemnation and the cane, the newer by commendation and sympathy.

[3] This internal or self-discipline may, under suitable conditions, be established when the discipline of external pressure has entirely failed. Its cultivation is the keynote of the George Junior Republic and similar institutions.

control and inhibition needs to be cultivated at an early stage of growth, for an impulse once controlled becomes easier to control a second time, but if successively left uncontrolled may ultimately become uncontrollable; and this same control of the instinctive and emotional impulses is the physiological part of the raw material of all ethical conduct and an essential for the full fruition of religion itself. In the childhood of the individual, as in the childhood of the race, the instinctive impulse generated by a blow finds its reaction in another blow. In the child of a larger growth the answering blow may be given with the walking-stick or the hunting-crop. "In more sedate circles the same instinct may find expression in a lawsuit, while among the saints of the earth it may take the negative form of heaping coals of fire on the enemy's head."[1] If the instincts furnish the initial impulse in the development of human beings it is none the less the part of cultivated manhood and womanhood to control and direct them instead of being controlled and directed by them.[2]

"Man who man would be
Must rule the Empire of himself!"

—Shelley.

[1] *The Psychology of Education*, by J. Welton, p. 73.

[2] "Social existence depends on certain abstentions. Society holds together by virtue of the inhibition, or control, or self-denial, that its members impose upon themselves, with respect to acts that are prompted by their self-preservative and reproductive instincts." *Crime and Insanity*, by C. A. Mercier, p. 20.

"It is not easy to distinguish logically between a good picture and a bad, but the difference is really enormous. It is not easy to make distinction between the love between men and women which is merely instinctive and that which is the basis of all the higher manliness and womanliness; but the difference between them is like the difference between heaven and hell." "The Sub-Conscious and the Super-Conscious," by Professor Percy Gardner. *Hibbert Journal*, April 1911.

The Significance of the Increased Size of the Cerebrum in Recent as compared with Extinct Mammalia.[1]

"It is well established that the extinct mammalia of the middle and lower tertiaries had—as compared with their nearest living congeners—an extremely small cerebrum. The exact figures are not important, but *Titanotherium*—a true rhinoceros—had certainly not more than one-fifth of the cerebral nervous substance which is possessed by living rhinoceros. *Dinoceras*, representing a distinct group of Ungulata, had even a smaller brain. Yet in bulk these animals were as large as, or larger than, the largest living rhinoceros. Further, it appears from the examination of the cranial cavities of extinct and recent reptiles that the increase in the size of cerebrum is not peculiar to mammalia, but that we may assert as a general proposition that recent forms have a greatly increased bulk of cerebrum as compared with their early tertiary or mesozoic forebears.

"It appears also that the relative size of the cerebrum in man and the anthropoid apes may be cited here as a similar phenomenon; the more recent genus *Homo* having an immensely increased mass of cerebral nerve-tissue as compared with the more ancient pithecoid genera.

"The significance of this striking fact, viz., that recent forms have a cerebral mass greatly larger than that of extinct forms (probably in every class of the animal kingdom) has not been discussed or considered as it deserves. . . . In what does the advantage of a larger cerebral mass consist? What is it that the more recent mammalia have gained by their larger brains? Why has there been this selection in all lines of animal descent of increased cerebral tissue?

"I think we gain a key to the answer to this question

[1] By Sir E. Ray Lankester, F.R.S. *Cinquantenaire de la Société de Biologie*, Paris, 1899.

by a consideration of the differences of cerebral quality between man and apes. Man is born with fewer ready-made tricks of the nerve centres—those performances of an inherited nervous mechanism so often called by the ill-defined term 'instincts'—than are the monkeys or any other animal. Correlated with this absence of inherited ready-made mechanism, man has a greater capacity for developing *in the course of his individual growth* similar nervous mechanisms (similar to but not identical with those of 'instinct') than any other animal. He has a greater capacity for 'learning' and storing his *individual* experience, so as to take the place of the more *general* inherited brain-mechanisms of lower animals. Obviously such brain-mechanisms as the individual thus develops (habits, judgments, etc.) are of greater value in the struggle for existence than are the less specially-fitted instinctive inborn mechanisms of a race, species or genus. The power of being educated—'educability' as we may term it—is what man possesses in excess as compared with the apes. I think we are justified in forming the hypothesis that it is this 'educability' which is the correlative of the increased size of the cerebrum. If this hypothesis be correct, then we may conclude that in all classes of vertebrata and even in many invertebrata, there is and has been a continual tendency to substitute 'educability' for mere inherited brain-mechanisms or instincts, and that this requires increased volume of cerebral substance. A mere spoonful of cerebral tissue is sufficient to carry abundant and highly efficient *instinctive* mechanisms from generation to generation; but for the more valuable capacity of elaborating *new* brain-mechanisms in the individual as the result of the individual's experience of surrounding conditions, a very much larger volume of cerebral tissue is needed.

"Thus it seems probable that 'educability' has increased in those mammalia which have survived.

The ancient forms with small brains though excellent 'automata' had to give place, by natural selection in the struggle for existence, to the gradually increased brains with their greater power of mental adaptation to the changing and varied conditions of life: until in man an organism has been developed which, though differing but little in bodily structure from the monkey, has an amount of cerebral tissue and a capacity for education which indicates an enormous period of gradual development during which, not the general structure, but the organ of 'educability,' the cerebrum was almost solely the objective of selection.

. . . . . .

"To a large extent the two series of brain-mechanisms, the 'instinctive' and the 'individually acquired,'[1] are in opposition to one another. . . . The loss of instinct is what permits and necessitates the education of the receptive brain.[2]

. . . . . .

"The fact is that there is no community between the mechanisms of instinct and the mechanisms of intelligence, and that the latter are later in the history of the development of the brain than the former, and can only develop in proportion as the former become feeble and defective."

[1] "This modifiability through individual experience is possessed by the cerebral cortex in higher degree than by any other part of the nervous system; and the capacity for reacting to stimuli in terms of past experience as well as of the present situation lies at the basis of that docility and intelligent adaptation of means to ends which are characteristic of the higher mammals. It is a fact of common observation that those animals which possess the capacity for intelligent adjustments of this sort have larger association centres in the cerebral cortex than do other species whose behaviour is controlled by more simple reflex and instinctive factors, that is, by inherited as contrasted with individually acquired organisation." *Introduction to Neurology*, by C. Judson Herrick, p. 294.

[2] "Nature never makes use of double means to an end and refuses instinct where it has granted the means for conscious performance or acquisition." *The Philosophy of the Unconscious*, by E. von. Hartmann, vol. i. p. 214.

When Sir E. Ray Lankester wrote these words the studies had been made of how this increased "educability"—the result of a larger cerebrum—is utilised by the higher animals, and three years later Long published his fascinating book giving detailed accounts of the animal Kindergartens :[1]

"That animal education is like our own, and so depends chiefly upon teaching, may possibly be a new suggestion in the field of natural history. Most people think that the life of a wild animal is governed wholly by instinct. They are of the same class who hold that the character of a child is largely predetermined by heredity.[2]

"Personally, after many years of watching animals in their native haunts, I am convinced that instinct plays a much smaller part than we have supposed ;[3] that an animal's success or failure in the ceaseless struggle for life depends, not upon instinct, but upon the kind of training which the animal receives from its mother. . . .

"Those young birds and animals that are left by sad accident, or sadder wilfulness, without their mothers' training profit little by their instincts. They are always first to fall in the battle with the strong. Those alone that follow their natural leaders till they learn wisdom live to grow up in the big woods. Sometime, in the course of a long summer, birds and animals that see their offspring well trained produce a second brood or litter. The latter are generally abandoned, at the approach of winter, before their simple education is

[1] *School of the Woods*, by William J. Long.

[2] "There is abundant evidence that a child of normal capacity may be trained to a degree of stupidity resembling innate feeble-mindedness, or to a degree of wrong-headedness resembling insanity, or, on the other hand, to a degree of intelligence which, relatively speaking, resembles genius." *The Laws of Heredity*, by Archdall Reid, p. 477.

[3] "It is a significant fact, that the more the habits of any particular animal are studied by a naturalist, the more he attributes to reason and the less to unlearnt instincts." Darwin, *The Descent of Man* (John Murray, 1901), p. 114.

half completed. Left with their instincts and their imperfect training, they go to feed nature's hungry prowlers; while the better trained broods live and thrive in the same woods, amid the same dangers. . . .

"Again, you find a little fawn hidden in the woods, as described in the next chapter, and are much surprised that, instead of running away, he comes to you fearlessly, licks your hand and follows you, calling wistfully as you go away. You have yet to learn that fear is not instinctive; the most wild creatures, if found early, before they have been taught, have no fear, but only bright curiosity, for one who approaches them gently.

"A few weeks later, while prowling through the woods, you hear a sudden blast, and see the same fawn bounding away as if for his life. You have not changed; your gentleness is the same, your heart is kind to every creature. What then has come over the son of Kish? Simply this: that one day, while the fawn was following his mother, a scent that was not of the woods stole in through the underbrush. At the first sniff the doe threw up her head, thrust her nose into the wind, snorted, and bounded away with a sharp call for the fawn to follow. Such a lesson rarely needs to be repeated. From that moment a certain scent means danger to the fawn, and when the friendly wind brings it to his nostrils again he will bound away, as he was taught to do. And of all deer that flee at our approach in the wilderness, not one in ten has ever seen a man or suffered any harm; they are simply obeying one of their early lessons. . . .

"The summer wilderness is just one vast schoolhouse, of many rooms, in which a multitude of wise, patient mothers are teaching their little ones, and of which our kindergartens are crude and second-rate imitations. Here are practical schools, technical schools. No superficial polish of French or literature will do here. Obedience is life; that is the first great lesson. Pity

we men have not learned it better! Every wild mother knows it, lives by it, hammers it into her little ones. And then come other secondary lessons,—when to hide and when to run; how to swoop and how to strike; how to sift and remember the many sights and sounds and smells of the world, and to suit action always and instantaneously to knowledge,—all of which, I repeat, are not so much matters of instinct as of careful training and imitation.

"Life itself is the issue at stake in this forest education, therefore is the discipline stern as death. One who watches long over any of the wood-folk broods must catch his breath in times at the savage earnestness underlying even the simplest lesson."

And if in the cosmic struggle for existence among the higher animals instinct proves so ineffective a guide for life and has to be overcome and brought under control by conscious and laborious teaching, how much more true is this of man himself—man, regarded not as an individual subsisting by himself, but as a unit in a large and complex social organisation.

To the writer it has long seemed that in Huxley's Romanes Lecture, delivered only two years before his death, there is a strange blending of triumph and pathos. Of triumph in his strenuous assertion of the supremacy of moral law as against any conclusions to be derived from Darwin's theory; of pathos in his confession that in the view of evolution which he had so long championed he finds—

"No school of virtue but the headquarters of the enemy of ethical nature."[1]

[1] *Evolution and Ethics*, T. H. Huxley, Romanes Lecture, 1893, p. 27.

"That the cosmos works through the lower nature of man, not for righteousness, but against it."[1]

"Social progress means a checking of the cosmic process at every step and the substitution for it of another, which may be called the ethical process; the end of which is not the survival of those who may happen to be the fittest, in respect of the whole of the conditions which exist, but of those who are ethically the best."

"As I have already urged, the practice of that which is ethically best—what we call goodness or virtue—involves a course of conduct which, in all respects, is opposed to that which leads to success in the cosmic struggle for existence. In place of ruthless self-assertion it demands self-restraint; in place of thrusting aside, or treading down, all competitors, it requires that the individual shall not merely respect, but shall help his fellows; its influence is directed, not so much to the survival of the fittest, as to the fitting of as many as possible to survive. It repudiates the gladiatorial theory of existence. It demands that each man who enters into the enjoyment of the advantages of a polity shall be mindful of his debt to those who have laboriously constructed it; and shall take heed that no act of his weakens the fabric in which he has been permitted to live. Laws and moral precepts are directed to the end of curbing the cosmic process and reminding the individual of his duty to the community, to the protection and influence of which he owes, if not existence itself, at least the life of something better than a brutal savage."[2]

"Let us understand once for all that the ethical progress of society depends, not on imitating the cosmic process, still less in running away from it, but in combating it. It may seem an audacious proposal thus to pit the microcosm against the macrocosm and

[1] *Evolution and Ethics*, T. H. Huxley, Romanes Lecture, 1893, p. 28.
[2] *Ibid.*, p. 33.

to set man to subdue nature to his higher ends; but I venture to think that the great intellectual difference between the ancient times with which we have been occupied and our day lies in the solid foundation we have acquired for the hope that such an enterprise may meet with a certain measure of success."[1]

"I see no limit to the extent to which intelligence and will, guided by sound principles of investigation, and organised in common effort, may modify the conditions of existence, for a period longer than that now covered by history. *And much may be done to change the nature of man himself.* The intelligence which has converted the brother of the wolf into the faithful guardian of the flock ought to be able to do something towards curbing the instincts of savagery in civilised men. We are grown men, and must play the man."[2]

"strong in will
To strive, to seek, to find, and not to yield,"

cherishing the good that falls in our way and bearing the evil, in and around us, with stout hearts set on diminishing it. So far, we all may strive in one faith towards one hope:

"It may be that the gulfs will wash us down,
It may be we shall touch the happy Isles,
. . . . . but something ere the end,
Some work of noble note may yet be done."[3]

Huxley, at the close of his life and of his long fight on behalf of Darwin's theory, wearied with the toil and still perhaps enveloped in some of the dust of the battle, could find no synthesis of the antagonising claims of evolution on the one hand and ethics on the other; but we, in the clearer

[1] *Evolution and Ethics*, T. H. Huxley, Romanes Lecture, 1893, p. 34.
[2] *Ibid.*, p. 36.
[3] *Ibid.*, p. 37.

atmosphere of to-day, by regarding evolution as a true process of epigenesis, may see the clue which he sought in vain to the mystery of this ethical chaos. For us the dualism is of a different kind and has to be stated in different terms, it becomes a dualism of spirit and matter, of spirit and instinct ; and the process of epigenesis itself may be regarded as "*the working out of a problem in organisation and education by a MIND of immeasurable resources, through and by means of a resisting medium.*"[1]

[1] "The Higher Anthropology," by Francis H. Johnson. *Hibbert Journal*, July 1914.

CHAPTER IX

GENIUS

GENIUS is perhaps the whole or parts of the combination contained in the definition raised to the power of G, but is to be found only where the potentialities are innate.

Just as the co-ordinated activities involved in *instinctive* acts may be explained by the hypothesis of congenital dispositions of functionally correlated nerve cells in the lower functional levels of the cerebro-spinal nervous system, so the innate precocities of genius may be explained by the hypothesis of congenital dispositions of more or less functionally correlated nerve cells in the *cortical* layers of the brain.[1]

Such an hypothesis seems adequate to explain, *e.g.* the calculating aptitude of G. P. Bidder the engineer, whose father, a stonemason, used to add to his week's wages by taking his son round the country as "the calculating boy." Of Pascal, who

> "completed before he was sixteen years of age a work on the conic sections, in which he had laid down a series of propositions, discovered by himself, of such

[1] "Why do I thus distinguish so sharply innate tendency from instinct? Because I regard it as due to congenital dispositions of the cortex. And this brings me back to the physiological side of my doctrine of instinct. My thesis is that, in its strictly biological aspect, instinctive behaviour is as such wholly due to congenital dispositions in the subcortical centres." *Instinct and Experience*, C. Lloyd Morgan, p. 104.

importance that they may be said to form the foundations of the modern treatment of that subject." [1]

Of Mozart, who at the age of fourteen conducted the largest orchestra in Europe in La Scala theatre at Milan, during the performance of an opera of his own composition.

Frederick Myers considered that the essence of genius is the occurrence of sudden and periodic uprushes of the subliminal to the conscious mind.[2] If, however, we take the mental processes afforded by the definition; if we also consider the subconscious mind as using the same psychic processes to supplement the working of the conscious mind, and apply this view to individuals characterised by the different types of imagery found in the psychological text-books, the result is at least interesting.

Thus we have individuals who habitually and most easily form—

1. *Visual* images.
   (*a*) These may be dominated by and expressed for the most part in *colour*, and we have Raphael, Titian, Tintoretto, Turner, etc., etc.
   (*b*) Or may be dominated by and expressed in *form*; and we have Pheidias, Michelangelo, Rodin, etc., etc., and the great handicraftsmen.
2. *Auditory* or audito-motor images; which find expression in *sound*; and we have Bach, Handel, Mozart, Beethoven, etc., etc.

[1] George Chrystal, *Encycl. Britann.*: Art. "Pascal."
[2] *Human Personality*, by F. W. H. Myers.

3. Images of *motion* and muscular sensation; and we have Genee, Pavlova, etc., etc.

4. Abstract images expressed in *words*.
   (*a*) In the domain of *Literature*; and we have Homer, Dante, Shakespeare, etc., etc.
   (*b*) In the domain of *Philosophy*; and we have Plato, Aristotle, Descartes, Kant, etc., etc.
   (*c*) In the domain of *Science* (theories, laws); and we have Galileo, Newton, Darwin, etc., etc.

5. The genius in affairs.
   (*a*) The non-moral genius of action, *e.g.* Napoleon.
   (*b*) The moral genius of action, *e.g.* Alfred the Great, Charlemagne, Gladstone, etc., etc.

We may set aside Lombroso's conception of genius as a morbid degenerative condition, and in place of it we may say with Baldwin: "Given a philosophy that brings the great into touch with the commonplace, that delineates the forces which arise to their highest grandeur only in a man here and there, that enables us to contrast the best in us with the poverty of him, and then we may do intelligent homage. To know that the greatest men of earth are men who think as I do, but deeper, and see the real as I do, but clearer, who work to the goal that I do, but faster, and serve humanity as I do, but better—that may be an

incitement to my humility, but it is also an inspiration to my life."[1]

Or, if we like to regard genius from another side, we may see much truth in the late Sir Herbert Tree's humorous *mot*, that "Genius is an infinite capacity for *not having to take pains*."

[1] *The Story of the Mind*, by J. M. Baldwin, pp. 259–260.

CHAPTER X

NEURONISM[1]

"*With the sensorium, matter and motion come to an end; while phenomena of another order, or immaterial states of consciousness, make their appearance. How is the relation between the material and the immaterial phenomena to be conceived? This is the metaphysical problem of problems, and the solutions which have been suggested have been made the corner stones of systems of philosophy.*" T. H. Huxley.[2]

"*I have got my mind working on the infernal old problem of mind and brain.*" Wm. James.[3]

We began our study with an ordinary boy and an ordinary violin: it has led us up to the many-sided aspects of genius, and through the whole story we have seen that the thought processes can be resolved into the reactions and interactions of quite simple psychical elements based upon something known as "sense-data." It now remains to try and show that the reactions and interactions of these psychical elements are congruous with the reactions and interactions of the higher cells called "neurones," in the cortical substance of the brain; and in view of the large number of "isms" existing, and apparently flourishing, in philosophical,

[1] I am overwhelmingly indebted to Prof. G. Elliot Smith for help in this section—help in suggesting books and papers to study, and also for most valuable corrective and creative criticism.

[2] "On Sensation and the Unity of Structure of the Sensiferous Organs" (1879).

[3] *The Letters of Wm. James*, vol. ii. p. 198.

scientific and political terminology — Idealism, Realism, Naturalism, Mendelism, Bolshevism and the like—it may not perhaps be inappropriate to add one more drop to the vast ocean of the futility of human speculation, and describe the supposed relation of these psychical and neural elements as "Neuronism."

"Thought," as we call it, we have seen resolved into the reactions and interactions of "percepts" and "concepts," based ultimately, for the most part, upon "sense-data." No accepted definition or delimitation of this latter term has yet been arrived at. Mr Bertrand Russell[1] restricts the term to certain physical (non-mental) elements of which the mind *is aware*, and uses the term "sensibilia" to denote similar physical elements of which the mind is *not aware*. Here we follow Professor T. Percy Nunn[2] and use the term "sense-data" to denote both, merely premising that as thought is both conscious and subconscious, so also will be the awareness of the sense-data.

In the following passage Mr Bridges shows admirably how the sense-data may make their impress subconsciously, and the results may afterwards become part of the organised and conscious mind:—

> "If I walk down the street with my mind busily engaged and absorbed in some remote train of thought, I observe nothing (though automatically I guide my steps none the worse for that); but afterwards, when I am aroused from my abstraction, I may remember to have seen certain persons or things on my way. The

[1] The chapter on Sense-data in *Mysticism and Logic*.

[2] "Sense-data and Physical Objects," *Proceedings Aristotelian Society*, vol. xvi. p. 156.

longer my abstraction continues the less I recall: but that I consciously remember anything which I did not consciously observe at the time shows that experience was unconsciously recorded; and much that I never remember, and never shall remember, was likewise recorded. It is even probable, with some of us at least, that when we peruse a column of the newspaper, our eyes may receive impressions from the neighbouring columns, and convey to the mind, through the brain, information concerning wholly unrelated matters; although the Conscience (I mean the conscious Reason) takes no note of them. They enter the mind unperceived; and this sort of unconscious experience is always going on.

"We have no conscious memory of this unconscious experience. Any experience which we observed and were conscious of at the time, we are able, more or less, to recall at will and reason upon. But our will has no power of recalling those other items of personal knowledge that have been unconsciously absorbed. But they are not for that dead or inactive. They are absorbed and organised. So that a man holds hidden away from his memory a vaster wealth of knowledge than he is aware of, or can draw on at pleasure."[1]

In this passage Mr Bridges shows how inextricably mixed may be those sense-data of which we are aware and those of which we are unaware, but they are all alike dependent on the impressions received by the different sense organs, and these impressions are conveyed to the brain as nerve stimuli from these sense organs; so it would seem that the term "sense-data" in its wide philosophical signification may be held to embrace the physical and chemical impressions to which the various

[1] *Address to Swindon Branch Workers' Educational Association*, by Robert Bridges, Poet Laureate, pp. 20–21.

sense organs are attuned, and which these organs transmute into what the physiologist calls afferent nerve stimuli from the sense or receptor organs. The term "sense-data" is here taken to embrace both these kinds of data—the physical or chemical impressions impinging on the receptor organs and also the nerve stimuli into which they are transmuted by these organs.

Based upon these sense-data we have seen that what we call "thought" consists of the reactions and interactions of psychical elements termed "percepts" and "concepts"; and if we may use the term sense-data as embracing what the physiologist calls afferent nerve impulses, we may also perhaps regard the term "percepts" as the philosopher's expression for the psychical aspect of what the physiologist calls the reactions or interactions of the receptor stimuli with the organised brain tissue, including the higher brain cells, where consciousness resides. Similarly the term "concepts" may perhaps be regarded as the philosopher's expression for the psychical aspect of the abiding results in organised brain tissue of these physiological interactions.

Just as owing to changes of time and circumstance words are constantly acquiring new meanings, and the difference of meaning is often lost in the identity of sound and becomes the source of confusion and fallacy, so also it is possible for men trained and occupied in different mental atmospheres to use different words to indicate the same or quite similar concepts. These differences in terminology, which are seen at their maximum in

what we call different "languages," and may even be observed in people speaking the same language who are in frequent mental contact with one another, are doubtless responsible for some confusion at the points of intermingling of different but contiguous categories of thought.[1] A synthesis of the psychical and neural elements in what we call thought must involve a view of these elements both from the side of the philosopher and from that of the physiologist or neurologist, and the terms of one are not always the terms of the other. Each has viewed the subject from his own particular standpoint, but these two resulting and complementary mental images have to be unified, and such a unification must involve a unified or, at least, an assimilated terminology. For us, then, in this book the term "sense-data" as used in current philosophical terminology is a term which embraces what on the physiological side are called the nerve stimuli transmitted from the various kinds of receptor organs; the term "percepts" is regarded as denoting the psychical side of what the physiologist calls the reactions of the receptor nerve stimuli with the organised brain tissue where consciousness resides, and the term "concepts" (with their multitudinous groupings into images, cognitive dispositions, etc.), as the psychical side of the accumulated results in organised brain tissue of these reactions, and also of the

[1] An attempt "to bring together opposite, divergent and diverse answers" to the question, Are the physical, biological and psychological categories irreducible? is recorded in *Life and Finite Individuality*, two symposia presented at a joint session of the Aristotelian Society, the British Psychological Society and the Mind Association, held in London on 6th and 7th July 1918.

interactions of the brain cells on one another quite apart from any receptor stimuli.

Returning now to the boy and the violin we shall see at once that what is usually called the visual image of the instrument forms one concept and the word "violin" another concept. It is possible that the boy may have seen the instrument and formed the visual concept of it before he became acquainted with the "word concept," which we call its "name"; or, on the other hand, he may have learnt the name or "word concept" before he actually saw the instrument; and just as we saw that the complete concept of the instrument had to be gradually built up by the repeated acquisition of new percepts from fresh sense-data or nerve stimuli, so also may the "word concept" have been gradually built up by a similar process—a process which is usually called "spelling." Whatever may be the method or methods of to-day, to an older generation this was not always a process of "spelling without tears," and often became a process of spelling with the aid of the dunce's cap or of the cane; but somehow, with the aid or accompaniment of the sense-data furnished by such instruments, the "word concept" was gradually and slowly built up of separate individual "letter concepts," and the entire word concept thus formed was in due course correlated with the visual concept of the violin itself, and the correlation of these two concepts achieved so early and re-enforced so often by repetitions through life abides enduringly in what we call our minds: the concept has a material counterpart which is built up in some unknown

fashion by the organisation of those brain cells of the cerebral cortex which go to form the material medium or vehicle of what we call "thought." Here we have an isolated and detached example of a process which in other forms is continually going on in all the multitudinous regions of our minds and through the whole of our experience in life.

In a previous page we saw that the process of differentiating the concept of the violin was a process of a particular kind. It was not a process of differentiation like that which the mathematician achieves by means of his formulæ, nor like that effected by the chemist when he resolves some compound substance into its elements; these are processes in which the differentiation is essentially, if not wholly, one of division; but in the case of the concept of the violin the differentiation was a process more akin to that used by an oil painter in painting a picture or a portrait, a process effected by the addition of new elements. In this it has much in common with the growth of all the various organs of the body, a growth in mass or bulk accompanied by differentiation both of structure and of function; and although it cannot be assumed that our brains are like our minds, capable of increased growth up to the end of life, the increase of our mental content in the way indicated may be effected by the fresh linking together of previously existing elements in the brain, by their being made to function in new combinations, or by previously existing elements being made to function which had not functioned before. Such changes then as we have seen to be

characteristic of what we call our "minds," seem congruous with the changes which may be effected by the functional recombination of multitudinous neurones in the various cortical areas, and which may perhaps be regarded as forming the material medium or vehicle of the ever changing and developing entities which are known to psychology as "association systems."

We have seen that the growth of the conceptual content of our minds is manifested not only by the increasing number of concepts which it contains, not only by the process of differentiation of these concepts, but also by the intimacy with which they are "correlated"[1] and "integrated." If this be so, and if the higher brain cells indeed form part of the material vehicle of thought, we must expect to find a means of correspondingly intimate communication between these higher brain cells or neurones; and such an intimate and complicated means of communication does in fact exist, and is in constant use between the axons and dendrites of the different cells through the multitudinous "synapses" and the association or intercommunication centres.[2]

In the delicate and varying mechanisms afforded

[1] The cortex is the repository of past impressions, and these sensory dispositions profoundly modify the effect produced on the arrival of fresh impulses. "Henry Head," *Brain*, vol. xli, p. 94, 1918.

The essence of cortical function is correlation. *Introduction to Neurology*, by C. Judson Herrick, p. 298.

[2] It must be borne in mind that the most significant parts of the human cerebral cortex are the association centres. These alone are greatly enlarged in the human brain as compared with those of the higher apes. In the latter animals the projection centres are fully as large as those of man, the much smaller brain weight being chiefly due to the relatively poor development of the association centres. *Introduction to Neurology*, by C. Judson Herrick, p. 290.

by the synapses linking together individual neurones, and the multitudinous intercommunication centres linking together the neurones of different cortical areas, will perhaps be found the clue to processes akin on the neural and physiological side to what we have called the correlation of concepts under the influence of the emotional element of the mind. We have seen in our outline of the conceptual and emotional complexes that an emotional element lies at the base of what we call "interest," and that this emotional element is all important in determining what part of the sense-data continually being presented shall be acquired by perception and incorporated into the organised mind. Equally true it mostly is, that only of what we already know a little are we interested to try and learn more. The emotional element only works with the greatest efficiency through the already organised brain tissues. These two complementary facts are now widely recognised as of fundamental importance in the application of the technique of teaching to individuals.

Whatever may be the intricacies of the neural mechanism itself, the sources and modes of its energy, the complexities involved in the inhibitory processes and in the regulation of its vascular supply, it may be that in the functional connections established between the various groups of neurones by means of the multitudinous synapses and the intercommunication centres will be found the neurological nexus involved in automatic thought or reverie ; and in the connections similarly effected between the various sensory and motor areas may

reside the neurological nexus of those acts, originally volitional, but which have in due course developed into the motor automatisms which are usually called "habits," and which also are often miscalled "instincts." These same motor automatisms, when occurring in the restricted neuromuscular mechanisms involved in speech, have been aptly generalised under the term *psittacism*.

If, then, the neurones and their connections by synapses and intercommunication centres may be regarded as the material medium or vehicle of thought, it would seem that what we call a composite mental image composed of many integral parts may be represented in the organised brain tissue by a multitude of neurones, often of different cortical areas, but so linked together by appropriate synapses and by fibres traversing the intercommunication centres that a nervous impulse exciting a group of cells in one cortical area may instantaneously be flashed to others perhaps widely separated, and the *functional proportion*[1] of the synaptic communications previously established may be the material or physiological correlate of what we call the mental perspective or proportion of the

[1] The simplest concrete memory that can appear in consciousness is a very complex process, and probably involves the activity of an extensive system of association centres and tracts. That which persists in the cerebral cortex between the initial experience and the recollection of it is, therefore, in all probability a change in the interneuronic resistance such as to alter the physiological equilibrium of the component neurones of some particular associational system. What the nature of this change may be is unknown, but it is conceivable that it might take the form of a permanent modification of the synapses between the neurones which were functionally active during the initial experience such as to facilitate the active participation of the same neurones in the same physiological pattern during the reproduction. *Introduction to Neurology*, by C. Judson Herrick, p. 295.

particular phase of consciousness then occurring. Should the synaptic communications be functionally disproportionate in different areas so also will be the correlated portions of the mental image, and we may then have occurring what the psychoneurologists call an "obsession" — a composite mental image in which some of the elements loom larger than they should, in which the relative importance of these mental elements is disproportionate, and productive of different kinds and degrees of falsification of the entire image. We all of us in turn, and for the most part throughout our lives, suffer from such obsessions, which only quite slowly become altered as time goes on by the constant rain of new impressions from the various sense organs or receptors, the constant flow of what we call "new experience." Under such influences, the contents of our minds slowly change: new "facts" or new "abstractions," as we call them, are unceasingly being acquired which may or may not be slowly "assimilated"—slowly welded, if that should prove possible, into a coherent whole with our previous knowledge, or, if this be not possible, our previous knowledge or opinion may be slowly recast to reconcile it with the new "facts" or new "abstractions" which the mind has acquired. Or, on the other hand, the new facts or abstractions may never be "rationalised," as the psychologists call it, never properly assimilated or correlated with our previous knowledge, but may remain in isolation as little related to the entire body of knowledge as are the detached and isolated paragraphs of a dictionary. The mind

then becomes largely a lumber room of concepts or complexes and not an instrument of precision working by means of a coherent and integrated body of knowledge or experience. The inevitable result of this process is that each of us forms what we call his "opinions" on different subjects; equally inevitably these opinions differ, and the difference of opinion is in some measure a criterion of our individual "personal equation," and the difference of the various opinions from the whole group of actual facts is in each case a measure of the amount of "obsession" of the individual forming that opinion.

It would be easy to follow the slowness of change in these obsessions, their gradual building up and breaking down in numberless characters in literature, and to draw illustrations of the process from such sources, were not the realm of imagination so much less interesting than that of current reality; so let us take two of the prominent characters in a recent phase of the passing world drama of to-day and see something of this process in the minds of characters so diverse as those of ex-Kaiser Wilhelm and President Woodrow Wilson.

An epitome of Kaiser Wilhelm's dominant obsession, indicating its genesis and nature, was sketched some years ago by himself.

> "The Emperor William deliberately wrote and published, for instance, such a statement as this:[1] 'From childhood I have been influenced by five men —Alexander the Great, Julius Cæsar, Theodoric II.,

[1] J. W. Gerard, formerly American Ambassador in Berlin, *The Times*, 23rd February 1918.

Frederick the Great and Napoleon. Each of these men dreamed a dream of world empire. They failed. I have dreamed a dream of German world empire and my mailed fist shall succeed.'"

The obsession thus begun, and subsequently strengthened and reinforced over a long period of years by the efforts of his General Staff, by the teaching of philosophers and historians like Nietzsche and Treitschke, by military writers like Bernhardi, and issuing in an extreme exaggeration of the doctrine of the Divine Right of Kings with appropriate attendant profanities, had its material or physiological counterpart which became securely established in the imperial brain tissue just as the counterpart of many another such absurdity has from time immemorial been built up in the brain of every man in the street.

Here is the Imperial expression of a portion of it on 10th February 1918:

"We Germans, who still have ideals, are to work to bring about better times: we are to fight for Right, good Faith and Morality. Our Lord God means to have peace, but such a peace in which the world endeavours to do what is right and good. We are to bring peace to the world, and we will do it one way or the other. Yesterday we managed it in friendly fashion. The enemy who, beaten by our armies, sees that fighting is no more use, and who holds out his hand, gets also our hand. We grip his. But he who will not accept peace, but, on the contrary, shedding the blood of his own and of our people, will not have peace, him we must compel.

"That is now our task, for which all must work, men and women. We wish to live in friendship with neighbouring peoples, but first of all the victory of

> German arms must be recognised. Under our great Hindenburg our troops will continue to achieve it. Then peace will come . . . . a peace of the sort required for a strong future for the German Empire, a peace that will influence the course of universal history. To this end the mighty powers of Heaven must stand by us. To this end every one of you, young and old, must live for one only thought, Victory and a German peace. Long live the German Fatherland." [1]

The early dream and the fully developed obsession,[2] as indicated by this and other speeches, may be said, when contrasted with the present reality, to afford an approximate measure of the degree of the ex-Kaiser's obsession.

If Kaiser Wilhelm's obsession may be said to have consisted in the belief that for the State, and for himself as head of the State, "Force is Right," the obsession of President Wilson may be said to have presented the antithesis of this, and to have been characterised in the main by the conviction that at any rate in the International sphere, Force must be limited to the Force of Persuasion and must not extend to the Force of Compulsion. That some such conception dominated his mind was perhaps indicated in his policy towards Mexico in the early months of his administration and is implicit in his address to the Graduating Class of the U.S. Naval Academy in June 1914.[3]

> "What do you think is the most lasting impression that these boys down at Vera Cruz are going to leave ?

[1] Speech at Homburg, *The Times*, 19th February 1918.

[2] For a detailed analysis of the ex-Kaiser's obsession illustrating Dr McDougall's teaching as to the instincts and sentiments, vide *The Psychology of the Kaiser*, by Morton Prince, LL.D.

[3] *President Wilson's Foreign Policy*, p. 52.

They have had to use some force. I pray God it may not be necessary for them to use any more. But do you think that the way they fought is going to be the most lasting impression? Have men not fought ever since the world began? Is there anything new in using force? The new things in the world are the things that are divorced from force. The things that show the moral compulsions of the human conscience, those are the things by which we have been building up civilisation, not by force."

Address to Newly Naturalised American Citizens. Philadelphia, 10th May 1915.[1]

"The example of America must be a special example. The example of America must be the example not merely of peace because it will not fight, but of peace because peace is the healing and elevating influence of the world and strife is not. There is such a thing as a man being too proud to fight. There is such a thing as a nation being so right that it does not need to convince others by force that it is right."

The *Lusitania* was sunk three days before this speech—on the 7th May 1915, but there is no allusion to the incident in the speech.

The Navy of the United States: Address at the Luncheon tendered the President by the Mayor's Committee, New York City, 17th May 1915.[2]

"When a crisis occurs in this country, gentlemen, it is as if you put your hand on the pulse of a dynamo; it is as if the things that you were in connection with were spiritually bred; as if you had nothing to do with them except, if you listen truly, to speak the things that you hear.

"These things now brood over the rivers; this

[1] *President Wilson's Foreign Policy*, p. 96.
[2] *Ibid.*, p. 101.

spirit now moves with the men who represent the Nation in the Navy ; these things will move upon the waters in the manœuvres—no threat lifted against any man, against any nation, against any interest, but just a great solemn evidence that the force of America is the force of moral principle, that there is nothing else that she loves, and that there is nothing else for which she will contend."

The *Lusitania* was sunk ten days before this speech — on the 7th May 1915, but there is no allusion to the incident in the speech.

Speaking of the War in his address delivered at the first annual assemblage of the League to enforce Peace, Washington, 27th May 1916,[1] he said :—

"*With its causes and its objects we are not concerned. The obscure fountains from which its stupendous flood has burst forth we are not interested to search for or explore.*[2] But so great a flood, spread far and wide to every quarter of the globe, has of necessity engulfed many a fair province of right that lies very near to us. Our own rights as a nation, the liberties, the privileges and the property of our people have been profoundly affected. We are not mere disconnected lookers-on."

Ten months later the obscure fountains from which the flood of war burst forth have become apparent.

[1] *President Wilson's Foreign Policy*, p. 190.

[2] "Knowledge is one of the forms and a necessary portion of morality ; and just as without an enlightened understanding there can be no real and perfect morality, so a true and comprehensive knowledge can subsist only in a mind disciplined by morality. It is true that this love of wisdom, often as it is proclaimed and paraded, is as rare as it is precious, for he alone can claim to possess it who is able and willing to dedicate himself to truth with an absolute and unreserved devotion and to make even the most painful sacrifice on its behalf." *Lecture on Error, Doubt and Truth*, by J. J. I. von Döllinger.

"Ignorance is not innocence, but sin." Browning.

Address, recommending Declaration of War against Germany, to the Two Houses of Congress, 2nd April 1917.[1]

"We have no quarrel with the German people. We have no feeling towards them but one of sympathy and friendship. It was not upon their impulse that their Government acted in entering this war. It was not with their previous knowledge or approval. *It was a war determined upon as wars used to be determined upon in the old unhappy days when peoples were nowhere consulted by their rulers and wars were provoked and waged in the interest of dynasties or of little groups of ambitious men who were accustomed to use their fellowmen as pawns and tools.*"

Address on the Essentials of a Permanent Peace, delivered to the Senate, 22nd January 1917.[2]

"Only a tranquil Europe can be a stable Europe. There must be, not a balance of power, but a community of power; not organised rivalries, but an organised common peace.

"Fortunately we have received very explicit assurances on this point. The statesmen of both of the groups of nations now arrayed against one another have said, in terms that could not be misinterpreted, that it was no part of the purpose they had in mind to crush their antagonists. But the implications of these assurances may not be equally clear to all—may not be the same on both sides of the water. I think it will be serviceable if I attempt to set forth what we understand them to be:

"They imply, first of all, that it must be a peace without victory. It is not pleasant to say this. I beg that I may be permitted to put my own interpretation upon it, and that it may be understood that no other

[1] *President Wilson's Foreign Policy*, p. 281.
[2] *Ibid.*, p. 249.

interpretation was in my thought. I am seeking only to face realities and to face them without soft concealments. Victory would mean peace forced upon the loser, a victor's terms imposed upon the vanquished.[1] It would be accepted in humiliation under duress, at an intolerable sacrifice, and would leave a sting, a resentment, a bitter memory upon which terms of peace would rest, not permanently, but only as upon quicksand. Only a peace between equals can last. Only a peace the very principle of which is equality and a common participation in a common benefit. The right state of mind, the right feeling between nations, is as necessary for a lasting peace as is the just settlement of vexed questions of territory or of racial and national allegiance.

"Notwithstanding this unexpected action of the German Government, this sudden and deeply deplorable renunciation of its assurance given to this Government at one of the moments of most critical tension in the relations of the two Governments, *I refuse to believe that it is the intention of the German authorities to do in fact what they have warned us they will feel at liberty to do.* I cannot bring myself to believe that they will indeed pay no regard to the ancient friendship between their people and our own, or to the solemn obligations which have been exchanged between them, and destroy American ships and take the lives of American citizens in wilful prosecution of the ruthless naval programme they have announced their intention to adopt.

"Only actual overt acts on their part can make me believe this even now."

[1] "There remains, of course, a sense of victory and triumph—the victory of right over wrong, of faith over faithlessness, of justice over injustice, of humanity over barbarism, a victory that makes men look up and believe again, that bids them hope again for a world fit to live in, and a victory, which, if we use it rightly, shall put truth for ever on the throne in the affairs of men." Speech by J. W. Davis, American Ambassador, to the American Luncheon Club in London. *The Times*, 22nd March 1919.

This passage might be paraphrased, "In spite of the declared intentions of the German Government, I will still maintain my obsession."

"We wish to serve no selfish ends. We seek merely to stand true, alike in thought and action, to the immemorial principles of our people which I have sought to express in my address to the Senate only two weeks ago. We seek merely to vindicate our right to liberty, justice and unmolested life. These are bases of peace not of war." . . .

In two months the partial vision of this part of the President's obsession was to be made more complete by the discovery that the right to liberty, justice and unmolested life are the bases not only of peace but also of *war for the right*.

Address at Baltimore, 6th April 1918.[1]

"The reason for this great war, the reason why it had to come, the need to fight it through, and the issues that hang upon its outcome, are more clearly disclosed now than ever before.

. . . . . .

"Their purpose is undoubtedly to make all the Slavic peoples, all the free and ambitious nations of the Baltic Peninsula, all the lands that Turkey has dominated and misruled, subject to their will and ambition and build upon that dominion an empire of force upon which they fancy that they can then erect an empire of gain and commercial supremacy—an empire as hostile to the Americans as to the Europe which it will overawe—an empire which will ultimately master Persia, India and the peoples of the Far East. . . .

. . . . . .

[1] *President Wilson's Foreign Policy*, p. 375.

"That programme once carried out, America and all who care or dare to stand with her must arm and prepare themselves to contest the mastery of the world —a mastery in which the rights of common men, the rights of women and of all who are weak, must for the time being be trodden under foot and be disregarded, and the old, age-long struggle for freedom and right begin again at its beginning. Everything that America has lived for and loved and grown great to vindicate and bring to a glorious realisation will have fallen in utter ruin, and the gates of mercy once more pitilessly shut upon mankind!

"The thing is preposterous and impossible; and *yet is not that what the whole course and action of the German armies has meant wherever they have moved?* I do not wish, even *in this moment of utter disillusionment*, to judge harshly or unrighteously. I judge only what the German armies have accomplished with unpitying thoroughness throughout every fair region they have touched." . . .

In this moment of utter disillusionment!!—Never, surely, did statesman give voice to an utterance more self-revealing. At length the three and a half years' rain of new experience has had its full effect. Culminating in the Brest Litovsk Treaty it has at last broken down the mental obsession of the American President. This obsession had doubtless, like the ex-Kaiser's, been slowly built up from the days of his youth. Its material counterpart had become stereotyped in the physiological pattern established between the brain cells by their synaptic communications and their connecting nerve tracks, and it has only finally broken down twelve months after the United States had declared war on the President's own initiative.

But at last the physiological pattern in the cerebral cortex had become more accordant with the facts: at last the previously unrationalised factors are seen in due perspective: at last there is adequate realisation of the full import and obligations of his own words of three and three-quarter years before (4th July 1914):

> "Liberty does not consist, my fellow citizens, in mere general declarations of the rights of man. It consists in the translations of those declarations into definite action."[1]
>
> "There is, therefore, but one response possible for us: Force, Force to the utmost, Force without stint or limit, the righteous and triumphant Force which shall make Right the law of the world, and cast every selfish dominion down in the dust."[2]

British statesmen, unlike the President of the United States, had not forgotten the lesson of Napoleon. The memory of it and its teaching for to-day were implicit in the declarations of Mr Asquith and Sir Edward—now Viscount—Grey at the early stages of the war, and explicit in a speech of Mr Lloyd George in October 1917,[3] six months before the President's "utter disillusionment," and nearly twelve months before he caught the ear and expressed the feelings of the multitude by his intimation that there could be no peace with the Hohenzollerns.

Mr Masefield shows how Shakespeare, in num-

[1] *President Wilson's Foreign Policy*, p. 56.

[2] *Ibid.*, p. 380.

[3] "The failure of Napoleon taught France a lesson she never forgot, and a similar lesson—it took twenty years then, and more; it will not take that now—but a similar lesson must be burnt into the heart and memory of every Prussian before this war is done with." D. Lloyd George, speech at Albert Hall, 22nd October 1917 (*Times*, 23rd October 1917).

bers of the characters in the plays, illustrates the fact that "half the evils of life are due to the partial vision of people in states of obsession." The obsession of William Hohenzollern, ex-German Kaiser, led up to and precipitated the world conflict of 1914–1918; and the obsession of Woodrow Wilson, President of the United States, was responsible for unduly prolonging it by his failure to *lead*, at the right time and in the right way, the people of whom he was then the head. The practical unanimity with which the United States entered the war in April 1917, when compared with the date of their President's "utter disillusionment" (April 1918), shows that his obsession only broke down *after* those of the masses of his people. The people of the United States saw the facts as they were before their leader himself. "Read," said Bacon, "not to contradict and confute, nor to believe and take for granted, nor to find talk and discourse, but to weigh and consider";[1] and could we see Bacon himself reading these messages and speeches with the object of weighing and considering their contents, we might afterwards find him musing, haply to the accompaniment of an ironic smile, "It is the nature of the mind of man, to the extreme prejudice of knowledge, to delight in the spacious liberty of generalities."[2]

Shakespeare had studied the breakdown of these obsessions, and he depicted them for us in images of rare and exquisite beauty. When, towards the close of the great tragedy, Lear and Cordelia are

[1] "On Studies," *Essays*.
[2] *Advancement of Learning*, Bk. II, p. 99. "Everyman" edition.

brought in as prisoners, Lear ceases to be the Lear of the greater part of the play, and shows us the breakdown of his obsession, the conversion by adversity of a stubborn mind, and his return thereby to sanity and joy, if not to serenity.

LEAR. "Come, let's away to prison :
We two alone will sing like birds i' the cage :
When thou dost ask me blessing, I'll kneel down,
And ask of thee forgiveness : so we'll live,
And pray, and sing, and tell old tales, and laugh
At gilded butterflies, and hear poor rogues
Talk of court news ; and we'll talk with them too,
Who loses and who wins ; who's in, who's out ;
And take upon's the mystery of things,
As if we were God's spies : and we'll wear out,
In a walled prison, packs and sects of great ones,
That ebb and flow by the moon."

It is an example, in the supreme degree, of a universal human experience.

CHAPTER XI

THE HUMAN MIND AS A SIX-DIMENSIONAL COMPLEX

"*The space of the real world is a space of six dimensions.*"[1]
—Bertrand Russell.

We all at times fall into the deep waters of indiscretion, and it is at such a moment that this chapter is offered to the logicians as possibly affording material for exercises somewhat similar to those which have clustered round Zeno's paradoxes. It is a special misfortune for logic and for its place in the hierarchy of the sciences that it should have to be constructed and frequently reconstructed by means of the medium of language, a medium which is mostly empirical and alogical; and with this disability ever a part of it logic has necessarily suffered even at the hands of its friends. For one it is "the science of inference," for another "the theory of understanding," for a third "the substitution of similars"; for Professor Croce it is "the science of the pure concept," while Mr Bertrand Russell seems to endow it with something of the quality which we expect in fairy tales when he tells us that logical constructions are "symbolic fictions." After 2400 years some of us may perhaps be excused for being a little tired of Zeno's arrow and tortoise, and for wishing to see similar problems posited in a different range of subject matter. The symbolic fictions of this chapter may haply supply the material.

If the train of argument in the preceding pages be approximately valid, we have seen what we call "thought" resolved into the growth, reactions and interactions of psychical elements which are congruous with the growth of brain tissue and the reactions and interactions of brain cells. We

[1] *Mysticism and Logic*, p. 138.

have seen that the term "*sense-data*" may be held to embrace the nerve stimuli from the various kinds of sense organs; that the term "percepts" may stand for the psychical side of the interactions of these stimuli with the previously organised brain tissue, and the term "concepts" with their multitudinous groupings for the psychical side of the still more elaborated results of successive series of such interactions.

The brain has been stated to be man's organ for knowing the world; yet, as Mr Santayana quite aptly and humorously inquires, "If you hit it a hard blow, does the man continue to know the world?" A complete answer to this question would doubtless be that in some circumstances he may do so; but that if the blow be sufficiently hard, the brain ceases to perform this admirable function, because, while still retaining the three dimensions of Matter, it will have become dissociated from the fourth dimension of Mind, which is Life.

We have throughout regarded concepts as being largely subjective constructions of the human mind, but as having also an ideal nature or pattern,[1] a

[1] This ideal nature of the concept has, of course, no reference to transcendental "ideas," whether of Plato, Berkeley or other philosophers. These are to the writer inadmissible because anthropomorphic. To him Truth is a continuum; and ideas, concepts, or other discrete entities, in the relations of which human knowledge may be considered to consist, are the forms which that knowledge necessarily takes merely because it is entangled in Matter. The writer is sometimes tempted to fancy that on this point he reaches a position close to that of Professor Alexander, so close, indeed, as to be within arm reach across a short-brief interval of Space-Time, but if this be so, the paths by which the positions have been reached have been assuredly very different. Professor Alexander's track has been a toilsome one across the lofty and, to many of us, the inaccessible pinnacles of philosophical technique, while the writer's task has been little more than to loiter observingly down the broad high road which lazily winds its way down the smiling valley of common-sense. It is an example of the meeting of extremes.

nature or pattern which constitutes the mind's fifth dimension—a dimension which we may call Truth. This ideal nature of the concept only perhaps reaches its full development when it has learnt to question or even deny the value of its material medium or vehicle: when man in the fullness of his spiritual maturity and wisdom comes at last to realise that matter in the form of material being and possessions does not matter;[1] that Truth entangled in Matter for the most part ceases to be true and issues only in a kind of knowledge which can be represented by the reactions and interactions of brain cells. Mankind, indeed, with the imperfect instrument of conceptual thought as its best makeshift for Truth, resembles somewhat a number of children hand in hand encircling the base of some great mountain. Each child sees it from a different standpoint, and consequently at a different angle. From each successive point the separate views of the mountain slightly vary. The light strikes differently, the shadows alter, the contour changes. From opposite sides the views are quite dissimilar, and from all the various points of view close to its base the summit of the mountain is always out of sight. This mountain may represent the Truth, and of it only the wisest of mankind have learnt even a little. The higher one climbs upon it the steeper and more difficult does the ascent become, and the best of us in this life never get nearly to the top: it reaches up to

[1] On the other hand, the use that is made by the individual man of his material being and possessions does of course matter a great deal.

Heaven.[1] The truths of human knowledge at its best are but "the halting expression of a reality beyond our reach, the half-seen vision of transcendent Truth."[2]

But the Mind has its emotional as well as its thought side, and this we have seen may be resolved into two great and diverse manifestations of a single emotional element linked in infinitely subtle and varied combinations with the conceptual elements of thought. This fundamental emotional element furnishes the sixth dimension of mind. It is called Love.[3] But just as Truth entangled in Matter results only in the imperfect instrument of conceptual thought, so Love entangled in Matter is tied and bound by the limitations of its attendant matter-bound truth. In combining with the multitudinous conceptual elements it breaks, like a wave, into the spray of a thousand passions, each one of which may take its turn in motiving and directing human action. The children of mankind, while completing so far as they may their circuit of the mountain of Truth, are often tending, by most devious paths, towards the centre of the maze of Love, and the further they advance on this two-fold quest the clearer become their views of the different sides of the paradox of ethics and of the region where ethics and religion are as one.

[1] "The higher we rise on the hill of knowledge the steeper and the more difficult does the ascent become. And we are not yet near the summit: it reaches up to Heaven." Sir James Paget.

[2] *The Foundations of Belief*, by the Right Hon. A. J. Balfour, p. 297.

[3] Dr Jung of Zürich uses the term *libido* to denote the fundamental emotional element in the human mind; but the connotations attaching to this term seem to make it so wholly inadequate that the old English word, with its far more ample series of connotations, is here adopted.

With this view of the six-dimensional nature of what we call man's "Mind," human personality seems to become more intelligible. Man's manifold obsessions, so slowly built up and with so much difficulty broken down, seem congruous with a theory which assigns a due share of what we call his "Mind" to the several and collective functionings of the material brain cells. Viewed in this perspective, the problem of Will seems to solve itself, the old conventional categories of Time and Space become merged into larger entities, and the problem of the constituents of MATTER[1] is seen to be co-ordinate with the problems of the constituents of LIFE, the constituents of TRUTH, and the constituents of LOVE—problems over which man will ever speculate, but which he will never perhaps finally solve.

[1] *Mysticism and Logic*, "The Constituents of Matter," by the Hon. Bertrand Russell.

CONCLUSION

The real philosophy of education has yet to be constructed. The materials for it do not at present seem to exist. Nor is it likely that much progress will be made with such a work until psychology shall have resolved the "states" and "complexes" of consciousness, with which it professes to deal, into more elementary data of experience—until it shall have differentiated our concept of consciousness more exactly into its various elements, as Cavendish differentiated our concept of water into the two concepts of hydrogen and oxygen, and as physicists are engaged to-day in differentiating our concepts of the atoms. But when the time comes at which mankind shall have attained to some coherent method of testing the value of the various new methods of educational technique which are from time to time introduced, the writer hazards the guess that if such methods aspire to deal with the whole of man's complex nature, they will, at any rate for young children and after due provision for physique, be largely based on the differentiation of percepts and concepts, the early formation of right emotional complexes and the cultivation of the power of mental inhibition and its application in the control of the natural instincts. "It is the fate and the glory of human life to be a restless search for rest."[1]

[1] J. W. Scott, "The Pessimism of Bergson," *Hibbert Journal*, Oct. 1912.

It is one of the paradoxes of infant education that we must use some of the child's natural or animal instincts in order to start the process which aims at ultimately endowing him with the power to control them all, and it is only when this aim shall have been achieved that spiritual man can be free from the trammels of, and find a true delight in, the glories of his animal encasement.

Great men in the past have dreamed their political dreams and committed them in writing to the future. Plato left us his *Republic*, Augustine his *De Civitate Dei*, More his *Utopia*, Bacon his *New Atlantis* and Harrington his *Oceana*; but man's consistent inability to put such dreams into being has resulted in the desolation of to-day. The problem of Politics, like that of Education, is a problem of harmonising diverse and discordant parts in the unity of a whole. In the future of Education lies the future of Politics. Knowledge has to be taken up by emotion, purged of its error, consolidated into judgment and expressed in conduct, and the ethical harmony of these different realms in human personality can be assured only by their being interfused throughout with the highest ideal of what man in his long history has usually called Religion. The deepest impulses in human nature crave to become both religious and rational, and the life which is not in a real sense both is in a complete sense neither.

THE END

NOTE

"The soul of man is a strange mixture of God and brute, a battle-ground of two natures, the one particular, finite, self-centred, the other universal, infinite and impartial. The finite life, which man shares with the brutes, is tied to the body, and views the world from the standpoint of the here and now. All those loves and hatreds which are based upon some service to the self belong to the finite life. The love of man and woman, and the love of parents and children, when they do not go beyond the promptings of instinct, are still part of the animal nature: they do not pass into the infinite life until they overcome instinct and cease to be subservient only to the purposes of the finite self. The hatred of enemies and the love of allies in battle are part of what man shares with other gregarious animals: they view the universe as grouped about one point, the single struggling self. Thus the finite part of our life contains all that makes the individual man essentially separate from other men and from the rest of the universe, all those thoughts and desires that cannot, in their nature, be shared by the inhabitant of a different body, all the distortions that make error, and all the insistent claims that lead to strife.

"The infinite part of our life does not see the world from one point of view: it shines impartially, like the diffused light on a cloudy sea. Distant ages and remote regions of space are as real to it as what is present and near. In thought, it rises above the life of the senses, seeking always what is general and open to all men. In desire and will, it aims simply at the good, without regarding the good as mine or yours. In feeling, it

gives love to all, not only to those who further the purposes of self. Unlike the finite life, it is impartial: its impartiality leads to truth in thought, justice in action and universal love in feeling. Unlike the nature which man shares with the brutes, it has a life without barriers, embracing in its survey the whole universe of existence and essence; nothing in it is essentially private, but its thoughts and desires are such as all may share, since none depend upon the exclusiveness of here and now and me. . . .

"The finite self, impelled by the desire for self-preservation, builds prison-walls round the infinite part of our nature, and endeavours to restrain it from that free life in the whole which constitutes its being. The finite self aims at dominion: it sees the world in concentric circles round the here and now, and itself as the God of that wished-for heaven. The universal soul mocks at this vision, but the finite self hopes always to make it true, and thus to quiet its troublesome critic. In many men, the finite self remains always the gaoler of the universal soul; in others, there is a rare and momentary escape; in a few the prison-walls are demolished wholly, and the universal soul remains free through life."[1]

[1] "The Essence of Religion," by the Hon. Bertrand Russell, *The Hibbert Journal*, Oct. 1912.

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